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Wyoming Court Holds Teapot Dome Lease Legal, No Fraud Involved

By Lawrence E. Smith
N. P. N. STAFF WRITER

CLEVELAND, O., June 20. EIGHTY-FOUR days after he had taken the case under advisement, Judge T. Blake Kennedy, of the federal district court of Wyoming, at Cheyenne, brought forth his decision in the suit of the United States against the Mammoth Oil Co. et al, popularly called the Teapot Dome case.

The defendant Sinclair interests won on every important point.

Thus a situation without parallel in a case of this magnitude is set up, inasmuch as Judge Paul McCormick, of Los Angeles—also a federal judge—recently held void the lease on Elk Hills naval reserve in California, to the Pan-American Petroleum Co., made about the same time as the lease on Teapot Dome was let to the Mammoth Oil Co.

While there was an element in the California suit not present in the Cheyenne case, in many respects the cases were alike and the two judges, who are of equal rank, took opposite views of the question involved.

Both cases are, of course, headed for the Supreme Court of the United States. The Doheny interests are now preparing to appeal to the circuit court of appeals and special counsel for the Government say they will carry the Teapot case higher. It will, therefore, require considerable time before the issues are finally determined.

The element in the Doheny case which was not in the Teapot suit was the $100,000, characterized by Mr. Doheny as a loan to Albert B. Fall, secretary of the interior at the time the leases were made. It was held by Judge McCormick that this was against good morals, whether a loan, gift or bribe and that it was a central fact in the case.

Continental Evidence Out

In the Cheyenne suit, the Government sought to prove connection between Liberty Bonds purchased by the Continental Trading Co., Ltd., of Canada with profits from oil purchased from the Humphreys interests and the Teapot Dome lease. Fall received some $230,000 of those bonds. The Government contended that H. F. Sinclair was present when the Continental bought the oil at $1.50 a barrel and was a guarantor of the contract for the Continental and that the Sinclair Crude Oil Purchasing Co. bought part of the oil from the Continental for $1.75. The Prairie Oil & Gas Co. bought the remainder.

The Cheyenne judge held that no evidence had been brought in to prove that Sinclair was involved in the passage of the bonds to Fall and ordered all testimony as to Fall's bank accounts and the Continental Trading Co. struck from the records. That motion was made and argued during trial of the suit and motion was, in effect, temporarily denied. After reviewing the record, the judge found there was no place in it for the Continental Trading Co. angle.

Differ on Points of Law

Law points are looked at from entirely different angles by the California and the Wyoming judges, so it will require Supreme Court decision to tell, for example, whether President Harding was within his right in issuing the executive order in 1921, transferring naval reserves administration from Denby to Fall, or rather from the naval to the interior department.

The California court held that the president exceeded his authority in issuing this order and interpreted the effect of the order as having given Fall the authority to handle the naval reserves as he saw fit. The court also found that Denby had played a passive part in the leasing.

The Wyoming judge does not dispose of that issue in such clear-cut manner. That is, he does not say positively that President Harding exceed his province, but holds that Denby and Fall adhered to the executive order and jointly conducted the negotiations. He holds that Fall acted throughout with the advice and consent of the navy in leasing the Teapot reserve. The judge went on later to say that while illegality of this executive order was alleged in the Government's bill of complaint, this contention had been virtually abandoned.

In the Doheny case, the court found that Denby's part in the leasing was a passive one and that, while Rear-Admiral J. K. Robison, chief engineering officer of the navy, had participated, he didn't fully understand what he was doing.

Admiral Robison was the star witness for the defense in both the Doheny and Sinclair cases. He, it appears, was getting ready for war in 1921, hence the private deals for getting steel tankage built for fuel oil bases by the Sinclair and Doheny interests. Supplemental contracts for the tankage were made after the leases had been granted.

The Cheyenne court has another view of the importance of Robison and Denby. He said:

Told Denby Took Part

"The evidence clearly shows that the negotiations preceding the execution of the lease were actively, earnestly and completely participated in, if not dominated by, the secretary of the navy and his designated representative of that department, Admiral Robison.

"Denby gave specific instructions in his own handwriting and over his own initials as to what the proposed lease would contain, and Robison outlined and insisted upon the principal provisions of the lease which were challenged —and the fact remains, with respect to the lease in controversy, not a single significant act was performed without the advice and consent of Robison, the designated personal representative of the secretary of the navy, who testified

that he consulted continuously with his chief in regard to every proposed move and plan—the lease was executed by the secretary of the navy after full and mature consideration and review of its contents, which must lead to the conclusion that the lease was his legitimate child, brought to life in the exercise of his official discretion."

In a few words the Cheyenne court finds that the lease was honestly granted by the officials empowered to make such contracts; that it was a good thing for the Government; that no fraud was committed and that the lease and the supplemental contracts for storage are valid.

Expects to Be Criticized

In a few paragraphs accompanying his decision, Judge Kennedy said.

"In reaching a conclusion in this case we fully realize the degree of unpopularity with which it will be received. This is true, in the nature of things, because the great general public is reached only with the sentimental features surrounding the transactions involved, and being largely in the dark, as to all the other multitudes of circumstances with which the case is surrounded, and knowing perhaps less of the great legal principles which the experience of the ages has taught mankind must control in dealing with the rights of persons and property.

"The fact that this appears to be a good contract for the government, as testified to by those witnesses who are qualified to speak of its character, coupled with the fact that the courts should be concerned in sustaining formal grants upon which the right and welfare of many depend, impels the conclusion that such contracts should not be set aside for light or frivolous reasons, unless fraud in connection with this is clearly shown.

"We have no quarrel with the theory that the congress should have and has the constitutional power to regulate the manner in which the property of the United States shall be handled by the executive branch, but we do maintain that in the exercise of that power, it may by appropriate legislative authority delegate officers of that department to handle government property in an unrestricted way and in accordance with a vested discretion.

"Therefore, it is not only possible, but very probable in this case that the action taken by the secretary of the navy if the contracts are honestly carried out, will actually conserve oil which otherwise would have been lost had no such action been taken, for, as to how far-reaching drainage may be and how far oil pools extend underground, is at present little known, even by the geologists themselves."

The court commented upon the activity of certain government employes and officials in leasing Teapot, as follows:

"The court has been impressed by two unusual situations not ordinarily found in a case of this character. First, although a conspiracy is one of the bases for the annulment of the lease, one alone of the many government officials having taken part in its consummation is charged with corrupt and ulterior motives. We take it from the evidence and the expressed views of the plaintiff's counsel that although Denby, Roosevelt, Robison, Finney, Bain, Ambrose and Eddy had more or less intimate knowlege of the entire transaction, and some of them at least an active and persuasive influence in bringing it about, they must be considered as absolved from any incriminating fault as to fraudulent motive.

"Secondly, there is the significant lack of material damage to the government which usually attends allegations of fraud, for in the case at bar no attempt has been made to show that the lease in controversy in itself was a bad lease for the government, except perhaps theoretically by counsel, but on the other hand the testimony of the plaintiff's own witnesses who are competent to speak upon the subject tends to show that it is a lease much more favorable to the government than they as oil operators would be willing to assume."

The government argued at some length that the Navy and Interior departments had gone to unusual lengths in trading royalty oil from the reserves for tankage. It was contended that congress alone has the power to designate fuel bases and that money must be appropriated by congress for that purpose. The court held that ample authority is lodged in the congressional act vesting administration of the reserves in the secretary of the navy to perform all the acts that were committed in the leasing of Teapot dome.

As for the $25,000 advanced in 1923 by Sinclair to Fall, some time after the latter resigned as secretary of the interior, the court held there was no connection shown between the obtaining of the lease and the loan. The money was advanced when Sinclair employed Fall to make a trip to Russia in connection with negotiations Sinclair had at that time with the Soviet government.

The decision of Judge Kennedy is some 20,000 words long and contains the following:

"Again, in order to reach the conclusion recommended (he is here talking about the Continental Trading Co. affair) it must be assumed that the double purchase and sale oil transaction was a 'faked-up' transaction, instead of one in the regular course of business, and that the officials of the participating companies, from Humphreys to the Sinclair Crude Oil and Prairie Oil & Gas, were knowingly participating in the 'fake', which is equivalent to a charge of assisting in the bribing of a federal officer, and that in the consummation of which they are not shown to have had any interest. Upon the evidence here there is an easier way out, which is to assume that the transaction was bonafide".

Col. A. E. Humphreys' own testimony, on the witness stand at Cheyenne was that he sold the oil to the Continental and that he did not know for more than a year that the Continental had resold it. He was merely the seller of the oil, he said.

Nice Question Seen on Paying Doheny

WASHINGTON, June 20.—In connection with the court decision in the Doheny case in Los Angeles, a rather pretty question arises which may develop into something of a storm later.

In his decision, Judge McCormick held that while, by reason of fraud and illegel exercise of authority by some government officials, the lease on Elk Hills naval reserve was void, Doheny was entitled to recovery of money spent in developing the reserve and in building the huge fuel oil storage base in Hawaii.

That was somewhat surprising at first. The rule in federal courts is that when a conveyance is set aside because of fraud, the one who commits the fraud is entitled to no recovery. It appears, however, that when a federal court decided such a question, if the state wherein the court is situated has a law to the contrary, the state will be the rule. California has a law admitting of such recovery and it has been applied in state courts several times. Judge McCormick, therefore, followed that state law.

The peculiar question is this: Suppose, after the accounting now under way is completed, it is found that Doheny's expenditures in carrying out his contracts exceed the value of the oil he produced and sold and the amount of money held by the receivers in the case. Will congress make appropriation to cover the difference?

In such a case, Doheny could be reimbursed only by act of congress. A federal court order is not sufficient to open the safe of the U S. treasury. With congress constituted as at present, and in the frame of mind it is on naval reserve questions, there would be quite a battle over such appropriation.

Of course, the appeal by Doheny will delay any action along that line.

Advances Smackover Heavy Crude

SHREVEPORT, June 23.—On June 23 Shreveport-El Dorado Pipe Line Co. advanced Smackover heavy crude 10 cents, bringing below 24 gravity to 90 cents per barrel. Other purchasers are paying 80 cents for this grade.

This company also pays $1.45 per barrel for Smackover 28 gravity and above, while the Standard of Louisiana pays $1.30 for 27 and above. Prices of other grades conform to the Standard's schedule.

Continental Trading Co. Phase of Trial Discussed

THE following forms the principal part of what Judge T. Blake Kennedy said in his Teapot Dome decision about the Continental Trading Co., Ltd., which the government contended was related to the leasing of Teapot Dome, in that Fall received some of the profits, in the form of Liberty Bonds, from the purchase and re-sale of Mexia crude oil.

"Counsel for the plaintiff would have the Court draw the inference that because one of the Sinclair companies other than the Mammoth Oil Co. was the purchaser of certain oils theretofore contracted for by Blackmer (then President of the Midwest Refining Co.) from Humphreys, in which purchase other oil companies were likewise interested, that Sinclair is presumably guilty of fraud because some of the bonds which had been purchased by the company which Blackmer had nominated as his agency for consummating his contract were found in the possession of Fall's relatives. No connecting link other than the fact that one of the Sinclair companies was, with another company, the purchasers of this oil, together with additional oils from Humphreys under an independent contract and the presence of Sinclair in consummating the contracts, is offered upon which to predicate such inference and assumption, which counsel ask the Court to grace with the solemnity of a judicial finding of fact.

"In the first place, we have been unable to find anything in the evidence, and counsel offer nothing in the briefs upon which to predicate a finding that Fall and Sinclair were in personal contact before Dec. 31, 1921, at Fall's ranch in New Mexico, although it is possible that the name of Sinclair, among others, might have been mentioned in the conferences between the officials of the Navy and Interior Departments before that time as one of the men who would be financially able to take over and carry out a lease such as was contemplated.

"The Continental Trading Co. deal with Humphreys occurred more than a month prior, which strongly tends to negative the

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supposition of a conspiracy between the two, as well as lacking a substantial element in the establishment of fraud.

Says Blackmer Made Deal

"Again, while the apparent basis of the refusal of Osler (President of the Continental company) to answer in the Canadian depositions was that he would not reveal the name of his client who employed him to organize the Continental Trading Co. and which counsel for the plaintiff sought to have him directed by the court to answer, the evidence in this case discloses quite plainly that his client was Blackmer and not Sinclair. The testimony of Humphreys and Thomas clearly discloses that Osler and the Continental Trading Co. were the creatures of Blackmer, which leaves us, in the transaction, with no connection between Sinclair and Fall except by mere suspicion or guess, and even this at a time considerably in advance of any established contact between them.

"Again, in order to reach the conclusion recommended, it must be assured that the double purchase and sale oil transaction was a 'faked-up' transaction, instead of one in the regular course of business, and that the officials of the participating companies, from Humphreys to the Sinclair Crude Oil and Prairie Oil and Gas, were knowingly participating in the 'fake,' which is equivalent to a charge of assisting in the bribing of a Federal officer, and that in the consummation of which they are not shown to have had any interest. Upon the evidence here there is an easier way out, which is to assume that the transaction was bonafide.

"It is at least quite plausible to assume that the Continental Trading Co. transaction was a legitimate one, and was carried in the regular course of business. Blackmer, who was not associated in any way with the Sinclair companies, as far as the evidence shows, negotiated a purchase of oils from Humphreys and a sale of the same oils to third parties, who were large purchasing companies on the market. On the face of the transaction, at least, he acted as a broker.

Some Reasons Why

"As to why he designated a company instead of himself to become the intervening party is not disclosed, nor do we know that it is material, inasmuch as it is not shown that Sinclair was interested in the company or that any other connection between Fall and Sinclair was disclosed in regard to it. Blackmer may have had people other than either of these interested with him in his deal, and for that reason may have found it necessary and convenient to have organized a company. Being an officer of the Midwest Refining Co., he may not have desired to testify in regard to the details of the transaction for the reason that it might be thought by his company that he should be held accountable for his profits derived in his brokerage transactions, or be may have been desirous of avoiding income taxes, or his refusal may have been based upon the ground that as there was no connection between his transaction and the Mammoth lease, that it was not the concern of other people in their investigation of an entirely different and disconnected transaction.

"In the realm of speculation, we may allow our imaginations to roam at will. Stewart and O'Neil did not testify, although it appears that Stewart might have been available."

After discussing rules of evidence and court opinions concerning acceptance by a court of evidence of the character of that involving the Continental Company transactions through which the Government sought to establish a bribery transaction between Sinclair and Fall, Judge Kennedy continued:

"The trouble with the application of the principle contended for by counsel for the plaintiff in this case, is that no facts, the proof of which we are asked to deduce by inference, are laid at the door of Sinclair. The entire transaction in so far as it was participated in by Sinclair was fully revealed by other witnesses, and presumably, if we are to presume anything on account of the failure of Sinclair to testify, if he elected to so testify, his testimony would have been to the effect that he knew nothing further in regard to the Continental Trading Co. transaction than was disclosed by the other witness in the case. A different situation might have been presented had Blackmer been in the place of Sinclair, if we are to consider as admissible the evidence in regard to bonds purchased by the Continental Trading Co. and subsequently finding their way into the possession of Fall's relative. For aught we know there may have been independent business relationship, legitimate or otherwise, between Blackmer and Fall, as neither is made a party to this suit.

Admits Suspicion Is Aroused

"As repeatedly stated by the courts, fraud cannot be presumed, but must be proved.

"It may be admitted that the transaction arouses suspicion, but farther than this the court does not feel justified in going toward a finding in favor of plaintiff, in view of the principles of law announced. This court feels that it must be left to some higher court to find from the evidence what seem to be fatal missing links or to extend the principles of law so as to cover a situation as it here apparently exists."

Waite Phillips-Ohio Oil Deal Called Off

TULSA, June 20.—Negotiations looking to the purchase of the Waite Phillips Co. by the Mid-Kansas Oil & Gas Co., subsidiary of the Ohio Oil Co., have been called off, officials of both companies announced yesterday. No further negotiations are contemplated, it was said. Negotiations up to yesterday were of a tentative nature, it was announced, and never reached the point where a price was set or a gauge taken of all Phillips production properties.

The deal occasioned much comment on account of the magnitude of the Phillips properties. The properties consist of approximately 15,000 barrels daily production in Oklahoma, Kansas and Texas; two modern refineries, one at Wichita, Kan., and one at Okmulgee, Okla. also a marketing organization for the sale of petroleum products in the west, covering parts of Oklahoma, Kansas, Missouri, and Arkansas. The value of these holdings are estimated to approximate $30,000,000.

R. J. Berry, vice president of the Ohio Oil Co., and president of the Mid-Kansas, together with F. E. Hurley, vice president of Ohio Oil Co., in charge of Rocky Mountain district operations, have been in Tulsa in connection with the deal but were to return today to their headquarters, Mr. Berry to Findlay, O., and Mr. Hurley, to Casper, Wyo.

The statement of the Phillips company was emphatic in one respect, that being that its properties were positively not for sale henceforth either to the Mid-Kansas company or to any other company. The Waite Phillips Co. is enlarging its refinery and marketing divisions to keep pace with its increase in daily crude oil production, particularly at the Rainbow Bend, Kansas. It announced that it intended to continue expansion in all departments.

Robison Asks Coolidge for Retirement

WASHINGTON, June 20.—Almost coincident with the Sinclair victory at Cheyenne came public knowledge of the punishment that has been meted out to J. K. Robison, the navy captain, who while serving as chief of the bureau of engineering of the navy, planned the fuel oil depot in Hawaii, built by the Pan-American Petroleum Co. under supplementary contract following the leasing of the Elk Hills naval reserve. Robison, who held the temporary rank of rear-admiral, was a principal witness for the defense both in California and in Wyoming.

He has asked to be placed on the retired list because he is convinced that he cannot be promoted. Twice within a year he has been denied promotion to the grade of rear admiral. He drew that pay, but only because of the position as chief engineering officer.

A year ago the selecting board advised his promotion. It was made known that the senators who were fighting the naval reserve battle would try to prevent his confirmation. President Coolidge decided to send in his list without including Robison. Juniors, whose names were sent in, now actually rank Robison on the navy lists.

National Petroleum News

Compilation Of Mid-Continent Refinery Operations

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Gasoline Stocks Decline Although Week's Shipments Slump

(By Fast Wire Service)

TULSA, June 23

REDUCING their runs to stills an average of 10,000 barrels per day during the week ended June 19, the 124 refineries reporting to National Petroleum News were able to draw upon their reserves of gasoline to a greater extent than they have in any week this year. The reduction in gasoline stocks in all fields of the Mid-Continent reached 4,100,000 gallons, bringing total inventories at the end of the week down to 63,767,764 gallons.

The reduction in gasoline stocks was made possible by the lower rate of manufacture in the field. Shipments for the week fell off 1,000,000 gallons from the peak reached in the second week of June to a total of 38,447,779 gallons. This was caused by the slower rate of purchasing by jobbers which slackened buying was apparent at the time. By reducing their still charges 10,000 barrels per day the refiners reduced their production of gasoline 1,866,000 gallons from the record figure of the previous week to 34,409,258 gallons.

The 23 Kansas refiners reporting reduced their crude and rerun charges to stills 1450 barrels per day to an average of 90,728. In Oklahoma 46 plants reduced runs 4329 barrels per day to an average of 133,228 barrels. The 41 Texas plants reduced runs 760 barrels to 93,156 barrels per day and in north Louisiana and Arkansas 14 plants cut their runs 2670 barrels to 38,738 barrels per day. All plants were running at 77.9 per cent of their rated capacity of 456,800 barrels per day.

The reduction in gasoline stocks was well distributed through the various districts although Oklahoma led the list with shipments exceeding production by 19.4 per cent, giving a stock reduction in that state of nearly 3,000,000 gallons. Kansas stocks reduction was a little less than a million gallons while Texas refiners almost balanced production against shipments. The decline in volume of gasoline shipments was confined to Texas where it amounted to 23.8 per cent. In all other areas shipments increased around 5 per cent over the previous week.

Kerosene shipments continued to be slightly larger than production. North Louisiana and Arkansas was the only area which failed to draw on stocks. In those states the increase in stocks was only 30,000 gallons. For the entire Mid-Continent stocks were reduced 300,000 gallons to 20,320,160. Most of the reduction was shown by Kansas refiners who reported shipments 250,000 gallons ahead of production.

As has been the case in recent weeks when refiners have found it necessary to run close to their capacity to meet gasoline requirements fuel and gas oils have continued to pile up in storage tanks. The increase this week was 4,300,000 gallons or 2.8 per cent to a new total of 154,852,924 gallons. All states shipped less than they made with the exception of north Louisiana and Arkansas where stocks were cut 1,400,000 gallons.

Coming Meetings

Independent Oil Men of Tennessee to organize state association, Hermitage Hotel, Nashville, Tenn., June 25, 26.

Independent Oil Men's Association of New England, Inc., New Haven, Conn., July 8.

Nebraska Independent Oil Men's Association, Yancey Hotel, Grand Island, Neb., July 9.

Michigan Independent Oil Men's Association, Charlevoix, Mich., Aug. 27, 28.

Tulsa Petroleum Exposition, Tulsa, Okla., October. Dates not set.

American Petroleum Institute, Los Angeles, January, 1926.

Mid-Continent Refinery Operations Week Ended June 19

(By Special Telegraph Service)

	Kansas	%Change Previous Week	Oklahoma	%Change Previous Week	No. & Cent. Texas	%Change Previous Week	No. La.-Ark.	%Change Previous Week	Total	%Change Previous Week	Totals Week Ended May 22
No. of Plants	23		46		41		14		124		121
Da.Still Cap. (bbls.)	98,200		165,900		141,800		50,900		456,800		444,800
Da. Av. Crude Run	69,277		119,893		79,705		31,791		300,666		274,003
Da. Av. Other Oils	21,451		13,335		13,451		6,947		55,184		50,720
Da. Av. Total to Stills	90,728	— 1.6	133,228	— 3.2	93,156	— 0.8	38,738	— 6.4	355,850	— 2.5	324,723
GASOLINE—Gallons											
Stocks June 12	16,393,293		35,707,450		10,796,054		4,909,488		67,806,285		76,238,459
Prod., 6-12—6-19	9,617,421	— 1.3	14,694,305	— 1.6	8,274,814	—11.4	1,822,717	—19.9	34,409,258	— 5.1	30,080,313
Ship. 6-12—6-19	10,413,060	+ 4.9	17,554,211	+ 5.4	8,360,811	—23.8	2,129,697	+ 5.2	38,447,779	—2.6	33,090,557
Stocks June 19	15,597,654	— 4.9	32,857,544	— 8.0	10,710,058	— 0.8	4,602,508	— 6.3	63,767,764	—6.0	73,228,215
Ratio Sales to Prod	108.3		119.4		101.0		116.5		111.7		110.0
KEROSENE—Gallons											
Stocks June 12	7,653,494		8,792,402		3,582,551		575,430		20,603,877		19,831,271
Prod. 6-12—6-19	1,916,395	—13.3	2,743,358	—14.9	1,717,522	+17.8	303,679	—21.6	6,680,954	—8.2	6,726,617
Ship. 6-12—6-19	2,167,218	+26.9	2,782,086	— 4.4	1,742,834	— 3.7	272,533	—26.5	6,964,671	+2.4	7,030,254
Stocks June 19	7,402,671	— 3.3	8,753,675	— 0.4	3,557,239	— 0.7	606,576	+ 5.4	20,320,160	—1.4	19,517,634
Ratio Sales to Prod	113.1		101.4		101.5		89.7		104.2		104.5
GAS AND FUEL OILS—Gallons											
Stocks June 12	19,247,015		66,609,929		48,033,471		16,677,540		150,567,955		138,898,224
Prod. 6-12—6-19	9,924,554	— 5.1	13,587,714	+ 3.0	12,281,772	+ 5.7	8,246,333	— 7.0	44,040,076	—0.2	41,335,563
Ship. 6-12—6-19	8,410,616	+ 2.7	10,107,011	—22.8	11,600,283	— 2.8	9,637,197	— 2.9	39,755,107	—7.8	37,770,699
Stocks June 19	20,760,953	+ 7.9	70,090,335	+ 5.2	48,714,960	+ 1.4	15,286,676	— 8.3	154,852,924	+2.8	142,763,088
Ratio Sales to Prod	84.7		74.4		94.5		116.9		90.2		90.7

Discuss Motor Busses and Rail Cars

By John Younger
Editor Automotive Abstracts

WHITE SULPHUR SPRINGS

THAT newest factor in transportation in a large way—motor busses and rail cars driven by gasoline—in which both the oil industry and the automotive industries are concerned, was given due recognition at this annual meeting of the Society of Automotive Engineers, one session being devoted to this topic.

It was very largely attended and representatives of bus manufacturing companies were present, and from the General Electric and Westinghouse companies, and from steam roads, as well as automobile engineers. The discussion indicated that many of the large railroads in the country are considering both gasoline rail cars and busses as solutions to their suburban line problems. Considerable interest was shown in the development of an electric form of drive, but in conjunction with a gasoline engine and not with a central power station.

Some comment was heard on a possible future shortage of supplies of motor fuel, because of statements coming from the Federal Oil Conservation Board in Washington. President Hornung, of the Waukesha Motor Co., Waukesha, Wis., president of the S. A. E. in his address stated such fears were groundless, that the fuel supply that the petroleum industry could develop would in all probability be sufficient for 200 years or better.

There was every evidence of optimism among the automobile people at the meeting. Membership in the S. A. E. is growing and a ten per cent increase is expected this coming year. The engineering work of the association is very progressive.

There were of course papers on fuel and on lubrication. These presented nothing that was particularly new, but did show the great earnestness with which engineers are studying these and allied problems.

Crankcase Dilution

Crankcase dilution seems to be taking a back seat and the thought was expressed by A. Ludlow Clayden, of the Sun Oil Co., that its evils had been greatly exaggerated. In fact, if we do not have some dilution in the winter time, we will find our cars much harder to start, so that there is to a certain extent a law of compensation at work in this matter. Lubrication problems are not so easily disposed of, however, and the big trouble at present is to get lubrication to the cylinder walls, piston and crankshaft bearings at the early moments of starting when the oil pump has not started its functions. Lubrication is still a matter of "by guess or by God" and such men as Mr. Bernard, of the Standard Oil Co., and Mr. MacCoull, of the Texas Co., are working hard to take it out of this classification and put it into the realms of scientific measurement. Both these men showed by their papers that great progress is being made.

News from Oil Association

Detroit Oil Club Meets On Canadian Side

GRAND RAPIDS, June 22.—A dinner meeting of the Detroit Petroleum Club, which was organized by the Michigan Independent Oil Men's Association, was held on June 18 at the Island View Hotel, Riverside, Canada.

A golf tournament was the feature of the afternoon, with Edward F. Schlee, president of the Wayco Oil Corp., Detroit, furnishing the transportation to golfers in his power yacht to the Clair Country Club on the Canadian side, according to the invitation letter mailed out to all members of the Detroit Petroleum Club by James A. Gilmore, secretary of the Michigan jobbers' association. Mr. Schlee entertained all members who attended the meeting with a boat ride.

Dinner was served at 6:30, as was the 4.4 per cent variety which has made Canada famous, according to Mr. Gilmore.

A district meeting of Michigan jobbers is scheduled for June 25 at the Edgewater Club, St. Joseph.

A district meeting for oil men in northern Michigan will be held at the "Inn," at Charlevoix, on August 27 and 28, for which an interesting program is being planned.

* * *

New England Oil Men to Meet

WORCESTER, MASS., June 22.—The next meeting of the Independent Oil Men's Association of New England, Inc., is scheduled for July 8, to be held at New Haven, Conn., according to A. R. Tattersall, Worcester, Mass., secretary.

* * *

Sinclair Division Manager Transferred

J. V. Dippel, general manager for the past year for the central division of the Sinclair Refining Co. at Lincoln, which comprises Nebraska, Colorado, South Dakota, Iowa and Minnesota, has been transferred to Atlanta, Ga. A. G. Mayfield, had charge of the Missouri division.

* * *

LINCOLN, NEB.—L. L. Coryell & Son are building a service station at Beatrice, Neb., and installing storage tanks and service stations at Des Moines, Creston and Davenport, Ia., according to the weekly Nioma service bulletin of the Nebraska Independent Oil Men's Association.

* * *

GENOA, NEB.—Manhattan Oil Co. recently bought the properties of Emil Hart at Genoa, which also included a filling station at Blair, Neb.

Bilby & Baldwin to Have Trust Company

LINCOLN, NEB., June 22.—W. S. Bilby, formerly president of the Nebraska Independent Oil Men's Association, who, together with his partner, E. E. Baldwin, recently sold their company, the B. & L. Oil Co., at Fairbury, Neb., to the Continental Oil Co., have just finished checking over their properties at Grand Island and vicinity.

Mr. Bilby and Mr. Baldwin will establish a loan and trust company, buying and selling first class securities, according to the Weekly Nioma Service Bulletin, published by the Nebraska jobbers under the direction of C. M. Sutherland, secretary.

* * *

Coryell Oil Opens New Station

LINCOLN, NEB., June 20.—The Coryell Oil Co., of which George Coryell is president, who is also vice president of the Nebraska Independent Oil Men's Association, opened one of the most artistic service stations in Nebraska, judging from an architectural viewpoint, according to C. M. Sutherland, secretary of the association.

The station is built in English manor style with rough hewn stones and logs.

* * *

Tennessee Oil Men To Organize

NASHVILLE, TENN., June 19.—Independent oil men of Tennessee will meet on June 25 and 26 at the Hermitage Hotel, Nashville, for the purpose of organizing a state association, according to Tom S. Cooper, of the Estes-Cooper Oil Co., temporary chairman.

Any oil men outside the state who wish to attend, are welcome.

* * *

Michigan Jobbers Move To Grand Rapids

GRAND RAPIDS, MICH.—June 18.—The new headquarters of the Michigan Independent Oil Men's Association is 220 Ashton Bldg., Grand Rapids, Mich. Offices formerly were at 518 So. Water St., Jackson, Mich.

* * *

District Meeting of Nebraska Jobbers

LINCOLN, NEB., June 22.—A district meeting of the Nebraska Independent Oil Men's Association will be held on July 9 at the Yancey Hotel, Grand Island, Neb., according to C. M. Sutherland, secretary.

* * *

COLUMBUS, O., June 18.—A meeting of the North Central Ohio Oil Club was held on June 17 at the plant of the Dependable Oil Co. in East Marion, O., according to W. C. Hughes, field secretary of the Ohio Petroleum Marketers Association.

Smackover Operators Are Hard Pressed To Find Names for Sands

By Special Correspondent

EL DORADO, ARK., June 18

SO MANY productive sands have been found on the Smackover structure in Ouachita and Union counties, Arkansas, that it has become necessary for the Shreveport Geological Society which is composed largely of members active in both the States of Louisiana and Arkansas to appoint a special committee whose duty it will be to identify and suggest a more satisfactory nomenclature for the several producing formations.

At present, there is considerable confusion among operators regarding the correct names of the different sands which yield oil and gas at Smackover; and it is understood that the committee of geologists will offer for general adoption a list of new names which will be distinctive as regards the identity of the various sands, and at the same time satisfactory both from a geological and a popular standpoint.

Prior to the discovery of deep sand production at Smackover in Arkansas and at Pine Island in Louisiana, the majority of local operators, excepting of course those who have had geological training, knew of only three sands as potential oil reservoirs,—the Nacatoch, productive at Homer and El Dorado; the Blossom, productive at Haynesville and elsewhere; and the Woodbine, which yelds oil on Pine Island. However, as deep sand discoveries occurred at Smackover, the Marlbrook formation lying below the Nacatoch and above the Annona groups, found its place in the vocabularies of local operators.

Geologists and drillers are agreed that the sand in which the original V. K. F. discovery well was completed in July 1922, at a total depth of 2066 feet, is in fact a member of the Nacatoch group. When the discovery of light oil occurred at around 2300 feet in the vicinity of Louann and Griffin, drillers and other practical operators were at a loss to identify the new sand. H. G. Schneider, in Volume LXX of **Transactions American Institute of Mining and Metallurgical Engineers,** proposed that it be called the Meakin sand, from the name of the farm in which the first producing well was drilled. In the stratigraphical column, he places it at the base of the Marlbrook formation.

Five Day Sands Found

As development has progressed, a total of five producing sands have been found on the Norphlet Dome, which embraces the so-called East Field, or heavy oil section of the Smackover District. In addition to the Nacatoch, in which discovery occurred, a gas sand is logged at around 2250 feet. The prolific sand which has yielded more than 21 million barrels of oil since February is penetrated at around 2375 feet. As prospecting continued, deeper drilling was done in wells which failed to find profitable production at the latter level; and another oil-bearing zone was found by the Gulf, Phillips, and Lion companies and others at a depth about 75 feet below the so-called deep sand.

More recently, a fifth productive sand has been logged at a depth of around 2580 feet below the surface. Discovery of the latter occurred in the Texas Pacific Coal & Oil Co.'s Laney No. 5, in 31-15-15, which is credited with an initial flow of from 1000 to 1500 barrels of 23½ gravity oil per day. Operators have expressed the tentative opinion that the Texas Pacific well is producing from a sandy member of the Blossom group.

Blossom Production Extended

The Laurel Oil & Gas Co. has a hole full of oil from 2606-09 feet in its No. 1 Houston, in 12-16-16. A string of 5⅜ inch casing has been set on a packer at 2602 feet; and arrangements are being made to swab the well in an effort to start its flow. This test seems to extend the productive area of the Blossom sand by about two and a half miles southwest from the Texas Pacific well. It is located about a mile beyond the southwestern boundary of the 2000-foot and 2375-foot production.

The Gulf Refining Co. of Louisiana is preparing to set a string of 4½-inch casing at 2545 feet to afford a test of the Blossom horizon in its No. 1 Scott in 34-15-15, on the northeastern boundary of the Norphlet area and two and three quarter miles directly east of the Texas Pacific well.

Boom May Continue

Operators are looking to the newly-found sand at 2585 feet to maintain their production averages; and are confident that, if the crude market retains its present strength, their unrivalled boom may continue throughout the year or longer. The Blossom sand appears as a promising source of new production; and driling already is in progress in more than 25 wells in which it is planned to test this formation at widely scattered locations. Flowing wells are profitable at present crude prices; and it is possible that the new drilling campaign may surpass the booms which followed the discovery of the other two oil-bearing sands.

Production Declining

Production from the fertile sand at 2375 feet has declined sharply during the last month, having fallen from the peak of 393,000 barrels per day to around 229,000 barrels per day as of June 14. During the last four days, however, deep sand production has reached upward to around 249,250 barrels per day, as at present.

The appearance of salt water in increasing proportions has been associated with the present decline in production from the deep sand. Gas pressure is weakening too; and it is now apparent that the day is fast approaching when all the spectacular gushers must be put on the beam. Already more than 175 of the 385 completed deep wells have ceased flowing and more than 45 of them have been put on the pump. In the entire Norphlet area there are now only 15 wells that are flowing at the rate of 2500 barrels per day or better. Average deep sand wells yield from 300 to 500 barrels per day after having been put to pumping.

By the time this appears in print, the Smackover District will have produced a total of more than 100 million barrels of net oil, as calculated from actual pipe line runs. Statistics show that at present there are more than 26 million barrels of oil stored in the Smackover district. Pipe line runs, from producer to purchaser, exceeded 8,838,000 barrels during May. This figure is more than one million barrels less than that representing the total production for the month as a great many operators are storing their oil in earthen pits. Indeed, it is not possible to handle the field's total production through facilities now available. Pipe line acceptances averaged more than 283,000 barrels per day during last month; but shipments out of the district averaged only about 194,000 barrels per day, leaving 89,000 barrels per day to be handled in field storage. Of 5,391,000 barrels shipped out of the district during May, only about 42 per cent was handled through pipe lines, and the balance was transported in tank cars.

Third Sand is Extended Over Three Miles

HOUSTON, June 23.—Federal Petroleum Co.'s No. 7 Flenniken, in the Smackover district came in Monday, making 15,000 barrels, 50 per cent water and the rest oil. Production is from the third zone at 2640 feet. It was pinched to 3000 barrels. The well is more than three miles southeast of Texas-Pacific Coal & Oil Co.'s third zone discovery and proves this deeper pay for a wide area.

Soap Factory Sells Gasoline and Lubes Cut Price From Its Back Yard

By Roger B. Stafford
N. P. N. STAFF WRITER

BUFFALO, N. Y., June 20

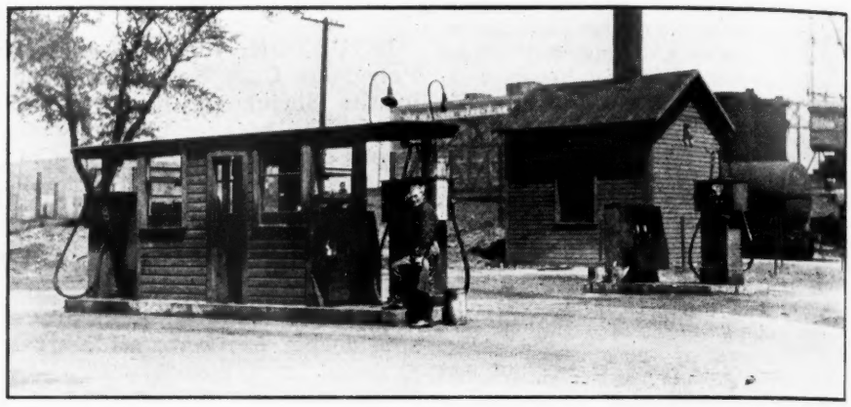
ONE of the leading Independent oil men in Buffalo estimates that 15 per cent of the gasoline bought by the motorists of this city and by the thousands of tourists on their way to or from Niagara Falls, is sold them by manufacturing companies that do a gasoline business on the side.

His estimate may seem high when it is considered that only five or six such companies are selling gasoline at as many stations usually well off arterial highways and not where they are easily accessible to motorists. There is no station operated by a manufacturing or other industrial concern that can cater to many motorists who do not have to go out of their way or inconvenience themselves to get to those stations. Cut prices, running up to 5 cents a gallon, is the bait that is used to attract trade.

The Buffalo cut price situation was explained in these columns about two years ago. At that time the Larkin Co., soap manufacturers doing a mail order business in soaps, perfumes, and many other lines, was the leader in the cut price movement. The Larkin Co. is still the pace maker in Buffalo's price cutting orgy. It leads; the others follow, some to their own detriment as is indicated now and then when they have to put up their prices 1 or 2 cents to cover expenses.

Gets 20 Cars in Month

The Larkin Co.'s station is in a lot back of their factory and great warehouses, and a motorist must drive down two back streets and across railroad tracks to get to it. Yet during May the company received about 20 carloads of gasoline. Probably some of this was used in its manufacturing but Buffalo oil men believe almost all was moved through the company's station. This is at a terrific rate if that number of car loads actually were sold at the station, being close to 6000 gallons moved per day. The station is not open on Sundays and only from 7 a.m. to 6 p.m. other days. At that rate the station would have to move approximately 550 gallons of gasoline per hour each of the 11 hours it is open daily. Pneumatic dispensers are used and the flow of gasoline is controlled from the nozzle of the hose.



Larkin Co.'s cut price gasoline station at Buffalo, N. Y., is nestled among factories and warehouses, and entwined with railroad tracks, considerably off principal motoring streets. Yet Buffalo oil men say the station received 20 carloads of gasoline in one month last spring. Buildings are of cheap wood construction—three are small ones. Six pneumatic dispensers are used for gasoline. There is one steel crankcase drain rack.

The Larkin Co. does no advertising except the billboard at its station telling of the Pennsylvania oil and free crankcase service, and a 2 by 4-foot sign on one of its buildings on Seneca street, a thoroughfare, which directs the motorist to the station "One Block South." Whenever the company changes its price of gasoline, it usually gets a first page story in the newspapers. Tourist traffic in Buffalo is mostly north and south so Larkin gets comparatively little of this trade.

The Buffalo station is one of three Larkin maintains in the country. The other two are in Peoria, Ill., where the company maintains a warehouse, and in Decatur, Ill. An effort to open a second station in Buffalo at a more desirable location was frustrated when the city council refused to grant the company a permit. The case was prosecuted through the courts—but the city won.

Wide margins the last three years have enabled the company to make a big enough cut in prices to attract motorists, oil men admit. The present delivered price of U. S. Motor gasoline in Buffalo is 16½ to 17 cents. The tank wagon price of the Standard Oil Co. of New York is 22 cents and the service station price 25 cents. The Larkin Co. and some of its imitators are selling for 20 cents.

The Larkin Co. has no trucking to do on either its gasoline or lubricating oils. The latter, it advertises, are bought in Pennsylvania and a large billboard at the service station carries the insignia of the Pennsylvania Grade Crude Oil Association, permit No. 256. It is trying to build up a quality business at cut prices, selling the Pennsylvania motor oils, which it blends itself, at 15 cents a quart to the public and at 15 cents a quart less 15 per cent to its employes on 30 days' "tick."

Employes also charge their gasoline but do not get a discount because of the narrow margin the company gets on that, approximately 3¼ cents per gallon gross.

W. A. Smith, who is in general charge of the gasoline business, and F. J. Arthur, purchasing agent who buys all the oil and gasoline, were out of the city this week, but at the Larkin office it

Factories Selling Cut-Price Gasoline

INDUSTRIAL concerns outside the oil business in many places are selling gasoline to employes, and in most instances the public as well, at cut-rate prices as a benevolent action. These companies escape the overhead costs of the oil marketing concerns by selling only from stations on plant property where they can dump gasoline from tank cars on plant sidetrack into the station storage. In addition the industrial concern assumes most of the cost of handling the gasoline.

National Petroleum News will continue to publish the facts on particular instances where this practice is being carried on. Write to its Editorial Department telling of cases you know where cut price gasoline is being handled as a sideline by plants or factories.

was said losses from employes quitting were rare because labor turnover was low and all the automobile owning employes were steady men and women.,

Sells Other Commodities

The company gives discounts to its employes on groceries, furniture, clothing and other articles it sells except in cases like butter, sugar and commodities where margins are all small. For those articles, the employes must pay the same prices as the public at either the main plant or any of the chain groceries the company operates throughout Buffalo.

At the gasoline oil station four operators are usually present. There is only one shift and each attendant works 10 or 10½ hours. Operators say that trade is brisk in the afternoon and especially so between 4:30 and 6 when men employed in the district leave for their homes. Trade appeared rather light one afternoon this week when the station was visited. It would require a great deal of activity in the afternoon to move as much gasoline as would be required to use 20 carloads in a month.

Six thousand gallons at 3¼ cents gross margin would mean a gross profit of $195 a day. Wages of operators would run $5 or $6 a day apiece, or $20 to $30 a day depending on whether four or five men were working.

This would be exclusive of motor oil, grease and accessory sales. The line of accessories is small and the grease, says a sign outside an oil storage house, is only 5 cents a pound.

Is Earning Profit

What rent the company charges its station could not be ascertained but it was said that the company undoubtedly was making enough money on present markets to warrant continuance of the gasoline and oil business.

"The Larkin Co. has been in business too long to bother with a losing proposition," was the answer to a question as to whether the station was paying a fair amount for the space it occupied.

"It will require close margins, much closer than we have had for several years, to drive those fellows out of the gasoline business," an oil man said. "They have no hauling to do, no trucks to maintain and operate. Almost their whole labor cost is the wages of the attendants. The ground in which the station is situated can be as well used for the purpose it is, as to be lying idle until such time as the company may find it necessary to build a warehouse or factory on it."

Buy on Atlantic Coast

All of the company's gasoline is bought from carload marketers on the open market. It is said most of it has been coming from the Atlantic seaboard because of slightly lower prices there and a preferential freight rate from seaboard markets.

But the 5 cents a gallon saving is insufficient to attract a majority of the Buffalo motorists and most of the tourists, practically all of whom are ignorant of the Larkin price. Buffalo motorists out for an evening's drive will not forsake the asphalt pavements of the elm-shaded avenues and parks of the north and west sides for the rough stone factory district pavements of the east side over which they would have to travel to reach the cheap gasoline of the industrial sellers. That probably is the chief reason why the Larkin station is closed at 6 o'clock instead of being kept open for the brisk trade that is always out on a fine summer evening.

Larkin Cause of Price War in Illinois

By W. K. Halbert

N. P. N. STAFF WRITER

PEORIA, June 18

CENTRAL Illinois' gasoline price war that has broken all records for endurance in the middle west, is smouldering now in the narrow confines between a 13-cent Group 3 price and a 20-cent tank wagon.

The Larkin Co., Buffalo, N. Y., precipitated this affair through its Peoria office, and Larkin is an old business establishment—having been in existence for half a century. They know when they are operating at a loss and when they are making money or they would hardly have remained in business this long. It is not Larkin that is selling the cheapest gasoline in Peoria now. Larkin is operating and selling for 17 cents when 20.2 is the posted service station price, but Larkin is not taking a loss.

This Buffalo mail order house is not in a position to dictate the prices and policies of the oil business all over central Illinois but it is fortified to make matters inconvenient for all legitimate oil companies in the neighborhood. It occupies a position of superb indifference. Oil men may sell gasoline for more than 17 cents and lose business, or sell for less than 17 cents and lose money. Larkin does not care which.

The Peoria price war started in August, 1923, about the time of the famous 6.6-cent tank wagon cut throughout Standard Oil Co. of Indiana territory. That is the time that Larkin went in the oil business in the west. In New York its oil activities date back three or four years farther. Briefly, this is how it developed.

The Larkin Co. is a soap concern; at least it was in the beginning. The policy of the company is to merchandise cheaply. It began by providing rural "schoolmarms" with summer work selling soap and perfume, etc. In stimulating this work, all sorts of prizes were awarded to salespersons. The prize section got so big it grew into a furniture department, selling on the time payment plan. From there the business spread into various channels.

As far as Illinois is concerned, the Larkin Co. has its headquarters in Peoria. It has an enormous warehouse here, maintains 48 cash-and-carry grocery stores in this part of the state and does a large freight and truckage business. The company owns its own truck fleet and the machines make long runs, consuming a lot of gasoline and oil. Very much the same sort of business is done in Buffalo.

Margins Too Wide

In 1923 when marketers' margins were so wide, the Larkin Co. was buying gasoline from oil men in Peoria. But it was selling gasoline at cut prices to the public in Buffalo.

The accounting department of the company is in Buffalo, and the contrast between the delivered tank car price and the posted tank wagon price was well known to the management. So Larkin began the cut price business in Peoria about the same time that Governor McMaster of South Dakota opened his historic gasoline selling program.

There was no investment in land. The Larkin station here was placed on the worst possible location; a remnant of land near the back door of the warehouse. The track already belonged to the company and was only open ground sufficient to give clearance to freight engines and box cars moving over the company's private trackage. It is almost surrounded by railroad lines. The accompanying drawing gives a better idea of its inconvenience than any description.

The best entrance to the filling station is through an alley, between two railroad tracks and across one of them. Another possible means of approach is down Bridge St., which is all the name implies. Most of Bridge St. is occupied by the approach to a bridge that crosses the Illinois river. But between the concrete walls of the bridge approach and the brick wall of a rooming house, on a steep grade, it is possible for two automobiles to pass if both drivers are skillful.

By this route too, it is necessary to cross at least one railroad track coming into the station and at least one going out.

There are two other ways of getting at the station. Coming up the alley instead of down it, the driver must cross two railroad tracks at the frog where

they converge. Coming up Bridge St. instead of down it, a driver must cross five railroad lines, some of which are main lines where passenger trains operate. This route is the way one would come from the river which is only about a block away. Little business originates there.

Advertising Advantage

The station is on low sloping ground. One of the railroad lines is in a cut four or five feet deep. A paling fence prevents the motorists from driving into this depression. It is safe to say that no oil man would give the Larkin Co. $5 a year for the use of the land as a service station site if he were going to sell goods at the prevailing price. The spot is hard to get to in an automobile. Yet it is viewed every day by hundreds of people.

While Bridge St. itself is an out-of-the-way place, the upper level of the bridge is one of the busiest drives in town. It connects Peoria with East Peoria. Every motorist passing over the bridge cannot help but looking into Larkin's station and read the electrical sign which announces gasoline for sale at 17 cents a gallon. And, of course, if the price is low enough there are people who will find their way into the place. As a matter of fact, it is a busy station working two men and a cash girl but not as busy as it was before the price was cut by oil people with stations on the level.

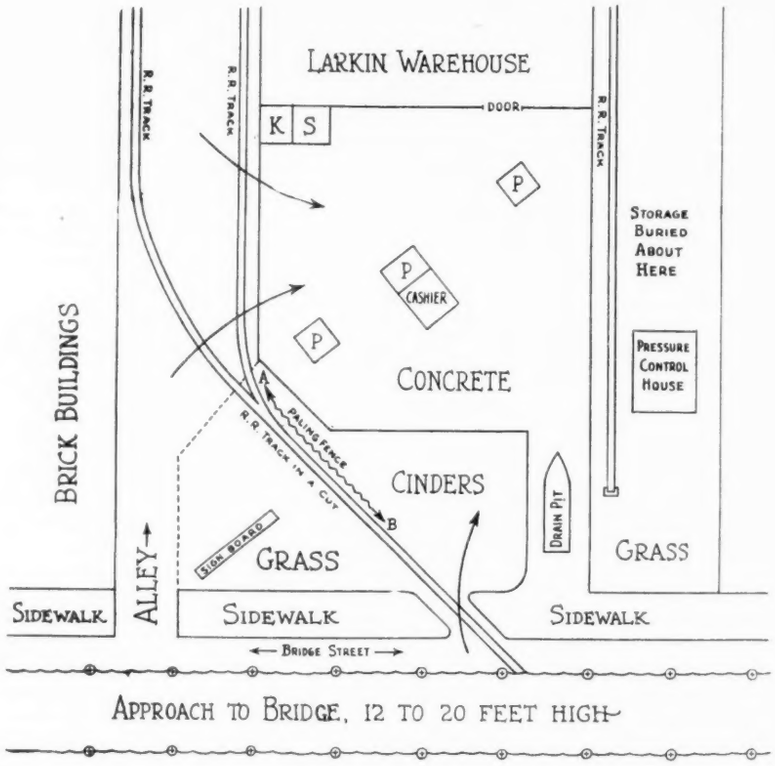
The Larkin station, in its secluded location, has two 20,000 gallon gasoline tanks buried 6½ feet under the ground. There are three retail dispensers on the ground and in rush hours it is necessary to keep one man at each dispenser. There is a woman cashier, locked in a little office in the middle of the lot with a cash register, a money changer and a small safe. The dispensers operate on a low pressure air system. It is an expensive installation, probably $10,000, as it stands today, capable of forcing a gallon of gasoline into an automobile tank every three seconds.

Proud of the Place

Larkin officials in Peoria are proud of their establishment. They do not consider there is anything about it to be ashamed of. F. L. Norris, the office manager, who has charge of the oil department also, states that the station did 100,000 gallons in August, 1924, and 25,000 gallons in December. It is a paying department in harmony with the rest of the business, handled on a basis of cheap merchandising. He boasts that the material is good also, because he says he has not sold any gasoline under 59 gravity and has never accepted a car that would not stand the doctor test. He is indifferent to the havoc wrought elsewhere.

"The place is difficult to approach", Mr. Norris said. "There are people who would not drive down here for gasoline, no matter how cheap it might be. Those people are not our customers. They will not buy from our grocery stores either. They want to call on the telephone, have the grocer deliver the merchandise, and then they want to wait six months to pay the bill. They are customers of another sort of a merchant."

Photo is of Larkin Co's Peoria station. Observe railroad tracks on both sides. Snapshot was taken from bridge approach 20 feet above the street. Larkin's warehouse is in the background.



The drawing shows layout of the same station. It is not minutely accurate but is a faithful representation of the ground plan. "K" and "S" show where kerosene pump and accessory store may be located under shed where the original pump and offices were. "P" shows location of pumps which in this case are air-pressure dispensers. Curved arrows show possible ways to enter.

Oil men in Peoria do not doubt that the Larkin Co. is keeping out of the "red" in its oil operations. All the administrative overhead is charged to the business as a whole. There is no advertising except what reputation a firm can acquire after selling at cut prices for two years, and one painted sign flooded with light. There is no expense for location. The location is worthless as a legitimate oil station but all right for what it is used.

Example is Worst

If the Larkin station operated in its dingy surroundings unmolested it would not be hard to cope with. The example set is the bad part.

"If Larkin can cut the price 3 cents, so can I," think a flock of persons, and Larkin has bred a swarm of cut-price stations in Peoria. Some of them are not afraid to cut the price even under Larkin. Some of them will likely go broke; but while they last they make it hot for the oil man with an investment. The worst of it is that they ruin the oil man's reputation by telling the public that he is a profiteer.

Today there are three kinds of oil companies in Peoria. From the least to the greatest, there are the "bootleggers" of whom Larkin is the recognized leader. Then there is a group of Independent oil men holding to Standard Oil Co.'s prices. And there are a few of the larger national companies, each trying to solve the problem in its own

way. And with all, it is a loud chorus of confusion.

Roxana Petroleum Corp. has the only tank wagon price in town that is openly reduced below that of Red Crown. National Refining Co.'s White Rose gasoline is selling for less than Red Crown, 20 cents at the retail pump. Shaffer Oil & Refining Co. is marketing something for 15½ cents through service stations but it is not the company's regular grade, Deep Rock, which is 20.2 cents, like Red Crown. The history of the price was is about like this:

Up to the latter part of April this year, Larkin and a few imitators had price cutting pretty much their own way. At the office of the oil inspector, some of these newcomers were shown to be developing a vast amount of gallonage. Red Crown was selling then at 20.2 cents. Competitive grades of gasoline sold by all companies of any standing, both large and small, were 20.2 cents. Premium grades, of which there are six sold in Peoria, all were moving at normal price differentials.

When the War Began

That was before May 16 when the battle opened. Larkin had been selling gasoline for 17 cents for months and a firm of junk dealers on the other side of the river were selling a motor fuel at 16 cents. But on May 16, Shaffer Oil & Refining Co. broke the continuity of things by introducing a special motor fuel for price war purposes. Shaffer's organization handled the thing much like other firms have handled similar situations. They did not advertise the new gasoline, they did not quite recommend it. They simply sold it at 15½ cents to the classes of trade that seemed to demand something cheap.

Up to this time the tank wagon price had not been cut openly, and there were comparatively few secret prices. But after Shaffer's cut Roxana made one, reducing competitive fuel to 17.2 cents and cutting the tank wagon to 15.2 cents. The same size cut was made on Shell Aviation, Roxana's premium grade, which came down from 25 to 22 cents. National Refining Co. was next to move, taking a 3-cent drop with White Rose to 20 cents. That placed one of the premium grades lower than Red Crown. And that situation held for four days.

On May 20 Larkin led the "bootleggers" down to 15 cents but the larger companies made no effort to meet it. Even Shaffer held the new "ammunition product" at 15½ cents. But of course a 15-cent price could not last. Freight from Group 3 to Peoria is 2.18 cents a gallon; so as soon as the Group 3 price reached 13 cents, gasoline delivered in Peoria and inspected represented a cash investment of 15¼ cents. Then the cut-price stations started to advance their prices.

Larkin Starts Advance

On June 10, on a "squeeze play" Larkin went back to 17 cents and all the cut-price stations followed; at least most of them did. Shaffer, however, stuck to the 15½ cent price on its new low grade material; Roxana remained at 17.2 for competitive goods and 22 cents for aviation. White Rose also "stood pat" at 20 cents. That is the price schedule that exists in Peoria today. The oil men are afraid that Larkin, operating so cheaply, will always be on hand here, as in Buffalo, to show the cut-price stations what the lowest possible price is. Worse still, the price war is not confined to Peoria.

E. A. Powers, manager of the Larkin Co's. operations in Illinois, says as far as he knows the management in Buffalo does not intend to enter the oil business extensively, but there is no denying that the company has entered the field in Decatur, Ill. On E. Prairie Ave., in Decatur, a few blocks from the best part of the business district, Larkin has procured one of the best locations in town for a combination bulk and filling station. The land faces one of the busiest streets in town, and backs up to Illinois Central trackage. There are several service stations in sight of the place, and W. W. Miller, head of the Independent Oil Co. of Decatur, who is familiar with property values in the neighborhood, says the lease could hardly be obtained under $200 a month. The Larkin installation in Decatur is probably more expensive than the one in Peoria. It cost close to $10,000.

Price War Spreads

Even at points where Larkin has no station, the influence of the price war in Peoria is felt. East Peoria, Bartonville, Pekin and Washington, Ill., from 1000 to 10,000 population all are in the throes of a price war. Just how far Larkin proposes to go is unknown but the company has no other interests in Decatur except an oil station. It does not have even one of its 58 groceries there. Not long ago the firm acquired a piece of property in Bloomington but by some political "quirk" failed to get leave to erect a station on it.

It is obvious that the Larkin Co. is learning something about the oil business. Only this spring the station yard below the bridge in Peoria was improved. It bloomed out from one out-of-the-way pump to the modern station previously described. In Decatur the company procured as good a lot as could be had in the city. Larkin's manager at Decatur is L. P. Lycan, a former employe of National Refining Co.

The Decatur station has 43,000 gallons of gasoline storage in two tanks. It has two 2000-gallon lube tanks, one for heavy motor oil and one for extra heavy, and Mr. Lycan is now installing a 6000-gallon tank for medium motor oil. He averages 17 cars a day on the drainage rack, he says, seldom failing to sell 20 gallons of lubricating oil a day. On especially good days he has sold as much as 5000 gallons of gasoline at the Decatur plant and held up a fair ratio of lube oil sales. It is not uncommon for the Decatur branch to sell 1000 gallons of gasoline between supper and closing time at 9:30 p. m.

Ahead of All Dealers

Gasoline receipts in Decatur in May were 16 cars to Standard Oil Co.; 14 cars to Roxana Petroleum Corp.; 11 cars to Independent Oil Co.; 10 cars to Macon County Oil Co.; eight cars to Sinclair Refining Co.; six cars to Shaffer Oil & Refining Co.; five cars to Wells-Hardesty Co.; three cars to National Refining Co.; and four cars to Larkin Co., who operated only in the last half of the month. Larkin has received 10 cars already in June, and the total Decatur volume in June is not running much larger than in May. At that rate Larkin will pass the Standard in volume this month.

When Larkin began doing business in Decatur after May 15, the Wells-Hardesty Co. was selling gasoline there at 18 cents having only started in business there at the first of the 1925 motoring season. Larkin opened at 17 cents and Wells-Hardesty met that price, but all the other companies are still selling at 20.2 cents, the price posted by Standard Oil Co. on Red Crown. Mr. Lycan boasts that he sells the best gasoline marketed in Decatur, has laboratory equipment sufficient to run a distillation test on samples from every car for the purpose of thwarting any accusation that he is handling an inferior product.

Larkin Co. gets most of its gasoline from Group 3, buying largely through Chicago marketers. The Peoria station has sold some material made by the Standard Oil Co., as have some of the other cut-rate stations in town. This has given rise to murmuring among the Independents who say "The S. O. holds up their tank wagon price, we conform to it, and then they sell gasoline to the bootleggers to use in cutting our industrial throats."

New Partner Joins Firm of Judge Chamberlin

CLEVELAND, June 20.—Judge C. D. Chamberlin, for many years secretary and general counsel of the National Petroleum Association and practicing law with Hubert B. Fuller under the firm name of Chamberlin & Fuller, has formed a new partnership by including George B. Marty. The new firm will be known as Chamberlin, Marty & Fuller. Office will be continued in the Guardian Bldg.

Judge Chamberlain is one of the best known oil lawyers and Inter-state Commerce lawyers in the country and Mr. Fuller has been associated with him for several years and has been active in matters pertaining to the oil industry such as oil inspection and the gasoline tax. Mr. Marty has been practicing law in Cleveland for 28 years.

Further Details of Standardization Worked Out at Conference

By Paul Wagner
N. P.N. STAFF WRITER

DALLAS, June 19

SATISFACTION was expressed at the close of this week's standardization conference in Dallas that the work is progressing favorably in all departments, and in all districts of the country.

President J. Edgar Pew of the American Petroleum Institute, who is also chairman of its general committee on standardization of oil country equipment, found the accomplishments of the various committees gratifying and so stated in his closing remarks before the conference.

Although making the statement that the program has been carried forward with the thought in mind that the "user who pays the bill, has the final decision," Mr. Pew declared he believed the manufacturers "are just as desirous of eliminating friction between buyer and seller as are the oil operators."

It is hoped to complete much of the standardization program in time for its final adoption by the Institute at the Los Angeles meeting, January 18, next.

Mr. Pew also said he hopes, after the adoption of all specifications, to have the reports printed in a single volume, one of which would be in the hands of every production superintendent and purchasing agent among the oil companies.

The work of the pipe committee, of which Mr. Pew is national chairman, was devoted largely to the question of phosphorus content in open hearth welded pipe. It was explained that this phosphorus content had been put at a point that was considered too high; that it was found that the minority users of pipe called for the high percentage rather than the majority purchasers.

Upon motion of R. L. Duff, of the Standard Oil Co. of New Jersey, Elizabethtown, N. J. it was resolved that the maximum phosphorus content in paragraph 3 (a) relating to open hearth welded pipe be changed from .08 to .045 and the specifications be changed accordingly.

It was resolved, further, that the following postcript be added to the A. P. I. pipe specifications providing for rephosphorizing open hearth welded pipe, such postscript to apply to the paragraph aforementioned:

"When rephosphorized pipe is desired the maximum phosphorus content in open hearth welded pipe may be raised to maximum .08."

A. S. M. E. Boilers Favored

A. B. Steen, of The Texas Co., Houston, national chairman of the committee on boiler standardization, reported favoring the adoption of the A. S. M. E. code, but suggested representation on the board of the engineering organization would be desirable. M. H. Broderick of The Broderick Co., boiler manufacturers, was suggested as representative when this shall have been accomlished.

The standard rigs and derricks committee headed by Walter W. Fondren, of the Humble Oil & Refining Co., Houston, recommended details of sizes with the exception of three points. One of these had to do with a water table opening; another the depth and style of groove for band wheel and bull wheel: and the third the length of the cat wheel shaft, which is dependent on the length of the band wheel shaft.

"Red" Hamaker of the Humble, who heads an engineering committee under Mr. Fondren's national committee, suggested to Mr. Hoenig, of the pumping equipment and engines committee, that standardization on the height of the Samson post was proposed. Mr. Hoenig answered that he thought the pumping equipment committee would be governed by the recommendations of the standard rig and derrick committee in that regard.

The rotary equipment committee was reported by Capt. J. F. Lucey of the Lucey Petroleum Corp., Dallas, as being "in harmony with the industry and the whole world."

Captain Lucey said his committee was waiting for specifications of the derrick committee as to the openings of the derrick and the derrick base. No definite recommendation had been made on sprockets, Captain Lucey said, "but we have made a recommendation on chains and have adopted a sprocket designed by Mr. Weiss (Charles R. Weiss of the Link Belt Co.) that had been considered an improvement over some of the sprockets now in use; and we will finally make our recommendations next year in California."

Work of the special committee on standardization of pumping equipment and engines as applied to the production of oil was reported by A. V. Hoenig of the Carter Oil Co., Parkersburg, W. Va., to have been concentrated on tubing and sucker rods. These were regarded as the most important points for consideration at this time.

A majority opinion of Mr. Hoenig's committee was that its recommendations, which are still tentative, should be submitted to a manufacturers' subcommittee and the work should proceed from the present basis as rapidly as consistent.

A. H. Riney, chief engineer of the Phillips Petroleum Co., Bartlesville, and national chairman of the special committee on belting, reported to the general conference that its time in Dallas had been largely devoted to tentative specifications now before the manufacturers for co-operative action.

Belt Tolerances Decided

At a joint meeting with the rig iron and standard rigs and derricks committees, Mr. Riney's committee decided the band wheel face for 12-inch, 14-inch and 16-inch belts would be 14, 16 and 18 inch; that is to say a 2-inch tolerance for the various belts.

Mr. Riney said his committee is at work on specifications for five general classes of rubber belting used in the oil industry, that the manufacturers are co-operating and the committee hopes to have a report ready for the next meeting.

The rig committee, presided over by R. F. Hill of the National Supply Co., in the absence of H. J. Lockhart of the Parkersbug Rig & Reel Co., will have its report ready at the January institute meeting, said Mr. Hill. Its work has been virtually completed insofar as dimensions of rig irons are concerned.

Inter-Committee Discussions

With regard to the groove in the casing line pulley and the crown pulleys, the rig iron committee desired the views of the wire rope committee. Mr. Hill said the wire rope people are very strong for cutting these grooves to fit a specific diameter of rope, whereas the rig iron committee was endeavoring to do just the opposite, suggest a standard for a rope groove that was common for the several sizes of rope that are used.

There are good arguments both ways, Mr. Hill said, adding that "we did not feel we were qualified to make any definite recommendation on that point."

Chairman Pew of the general standardization committee took up the discussion with this statement:

"I think the wire line people will tell the operators if they are to get the best

service from their wire line they have got to have the proper size groove, but we can't do that if we adopt one size in Oklahoma, another in Texas and in Arkansas. We have got to see that the whole thing is agreed upon and give and take, so long as it doesn't injure the general results."

C. C. Sharpenberg, of the Standard Oil Co., (California), then stated that, on the different sizes of wire ropes, there is always a tolerance and that tolerance is always plus. In sizes from zero to 3/8-inch diameter, he said, it is 1/16th inch plus; on 7/8-inch to 3/4-inch, it is 3/32-inch plus; on 13/16-inch to 1 1/8-inch, it is 3/64-inch plus. He made the recommendation that the groove in wire rope pulleys be made with an angle of 150 degrees to the diameter of the plus tolerance.

Leschen Verifies Figures

Mr. Scharpenberg's figures were verified by H. J. Leschen, of A. Leschen & Sons Co., St Louis, who declared that "where you are dealing with number of wire manufacturers you must necessarily have a certain amount of overage; these specifications provide for that, and that is definitely prescribed, so the ropes will fit into the grooves without any injury to the ropes."

Mr. Hill of the rig iron committee then said the men working with him were agreed, from a mechanical viewpoint, that there is no question about the desirability of running a wire line in a groove made for that particular size line; that, however, was not the point the committee was making.

"We are making a recommendation for a standard," he said, "and if we put in a recommendation that pulleys are to be provided with grooves for the various size wire lines we are adding to the expense of the user purchasing rig irons."

After remarks by Mr. Pew to the effect "you can't get the best use of a line" with a universal groove which would apply to all sizes, the question of tolerance came into the discussion.

E. E. Greve of the Oilwell Supply Co., Pittsbugh, wanted to know how long a given tolerance would hold in the use of a wire line, because of the wear on it.

This brought the statement from S. G. Dickey, of the General Petroleum Corp., Los Angeles, upon invitation of Mr. Scharpenberg, that his company had made experiments which showed very slight change in tolerance with the metal it used. It was developed that this material is manganese steel, which Mr. Dickey said his company felt justified in using at its increased expense.

Definite Grooves Proposed

Mr. Scharpenberg's committee recommended to both the rotary committee and the rig iron committee that they agree on a groove for each wire line as the most economical usage.

"There is a compromise there," said Mr. Scharpenburg. "We, in California, use principally 1-inch wire line and I believe we are justified in stating a curve for a 1-inch wire line.

J. Edgar Pew, Sun Oil Co., Dallas, president of the American Petroleum institute and general chairman of the standardization committee

"Perhaps in the opinion of the operator he might wish to run a 7/8-inch or 3/4-inch line, and in that case I do not believe he would be justified in having on hand separate sets of shieves. I do believe in certain regions, or perhaps in a particular company, that they would use grooves for the lines which they mostly use, but never in any case attempt to put a wire line of a larger diameter on a shieve designed for a smaller line with a smaller groove."

After further discussion a vote was taken and the consensus of opinion brought out that the size of pulley for the particular line to be used should be prescribed.

Bending Stresses Discussed

Bending stresses on wire line also came before the joint conference when Mr. Scharpenberg brought up the size of crown blocks. He quoted the wire rope people as desiring as large a crown block as possible. As the discussion proceeded the question of stresses in relation to the life of wire line developed more and more.

Mr. Leschen explained that bending stress is the stress that is set up in the outer fiber, or the outer wire. of a steel rope when it is passing around a wheel. That stress he said, "added to the load stress per square inch, will give the total foot pound stress on that rope; add to that the stress due to shock and acceleration, plus the friction, and you have the total load on the rope; multiply that by the safety factor and you have the proper sized rope to use on that block."

It was explained by Mr. Leschen that the bending stress is not related to the life of the line except in the sense that if the bending stress becomes too high, and it increases phenomenally, the safety factor becomes less until a point is reached where the wire will crack along the outside. The smaller the shieves the greater the bending stress, therefore "it is always advisable to use the largest possible shieve."

F. F. Hill, general production superintendent of the Union Oil Co. of California, Los Angeles, remarked that "if we take away that bending stress and add to the life of the rope we are certainly 'making' money, not only in the saving on the rope but in the saving in delay in changing ropes and also possibly avoiding fishing difficulties."

It was stated by Mr. Leschen in the course of the discussion that a wire rope is subject to compressive stress the same as bearings. Among other things, he said "a 1-inch rope around a 30-inch shieve would be bent around one half of the distance and the total pressure is one half of the contact; that same rope around twice that diameter, the bearing would be one half of what it is with a 30-inch shieve. and the bearing value is a big factor. That action takes place in proportion to the shieve diameter."

Tank Specifications

DALLAS, June 18

PRESIDENT L. W. YOUNG of the South Penn Oil Co., Pittsburgh, presided over the sessions of the special committee on standardization of steel storage and production tanks as applied to oil production, in the absence of G. M. Vandaveer, pipeline superintendent of the Midwest Refining Co., who is national chairman. Mr. Young is chairman of the eastern district committee.

Present were H. O. Helvie of the Carter Oil Co., Tulsa, chairman of the Mid-Continent committee; E. C. Kincade, Gulf Pipeline Co., Houston, chairman of the Texas committee; E. L. Andrews, Buckeye Pipeline Co., Lima, Ohio; E. J. Fitch, Magnolia Petroleum Co., pipeline department, Dallas; and the following representatives of manufacturing companies.

J. A. Grubb, Black, Sivalls & Bryson, Bartlesville, Okla.; Jay P. Walker, American Tank Company, Oklahoma City, Okla.; Amos Mitchell, M & V Tank Company, Wichita Falls, Texas; H. R. Brady, American Erectors' Association, representing seventeen manufacturers; H. S. Dilcher, Petroleum Iron Works Co., Kansas City, Mo.; E. E. Shanor, Petroleum Iron Works, Sharon, Pa.; J. M. Roberts, Riter-Conley Co., Pittsburgh,; C. G. Wells, American Tank Co., Oklahoma City, Okla.; H. B. Murphy, Chicago Bridge & Iron Works, Dallas, Texas; W. H. Dwyer, United Iron Works, Dallas, Texas; C. L. Harris, Black, Sivalls & Bryson, Bartlesville, Okla.; J. S. Warren, Maloney Tank Manufacturing Co., Tulsa, Okla.; S. L. Dickey, General Petroleum Corp., Los Angeles, Calif.; J. S. Foley, Columbian Steel Tank Co., Kansas City, Mo.

Only preliminary work was carried on at the first day's session after which a special meeting of manufacturers of small tanks was held. Those present at this meeting were Messrs. J. A. Grubb, Charles L. Harris, Jay P. Walker. C. C. Wells and Amos Mitchell. Mr. Grubb was temporary chairman and Messrs. Walker and

Mitchell were appointed to report the results of this meeting.

It was the sense of the meeting that no definite action should be taken at this time toward formation of a permanent organization, except that those present were willing and also of the opinion that such an organization would be helpful among manufacturers; that with the guidance and assistance of the A. P. I., the temporary organization will gladly co-operate with it, looking to the possible practicability of standardization of oil field lease tankage.

The committee stated its unanimous opinion that an invitation should be extended to W. A. Knapp of the Butler Manufacturing Co., Kansas City, and Secretary Hesse of the Ganz Tank Co., Sapulpa, together with California manufacturers, to have representation in the temporary organization.

Messrs. Brady, Shanor, Dilcher, Murphy, Dwyer, J. M. Roberts, D. C. Morrow and George Kinney took part in a committee meeting of manufacturers of rivited tanks. This committee made the following report:

"The committee of five representatives of oil storage tank manufacturers, being a fraction of the tank manufacturers of the country, beg to advise the Standardization Committee on Oil Storage Tanks of the American Petroleum Institute that their discussion this afternoon failed to develop what particular opportunities for elimination of waste and duplication in the matter of oil storage tanks there are, that this would seem to be determinable by the requirements of the producers; that if the producers would formulate their requirement, this group, and it is believed the other tank manufacturers of the industry, would be glad to lend their best efforts in arriving at general engineering specifications."

Various members of the committee and Mr. Brady agreed to take it upon themselves to submit to Mr. Vandaveer, the National Chairman, the names of any manufacturers not already reported to him.

The following report was received from a committee representing the users of oil storage and production tanks.

"The Committee representing users of large storage tanks recommends that each district committee shall prepare a recommendation covering maximum and minimum weights and sizes of sheets, rivets, roof supports, etc., and forward such recommendations to the national chairman and further recommends that the national chairman, after receiving these reports shall appoint one general committee to be composed of both users and manufacturers of these tanks and shall request this committee to design and recommend a standard tank within the limits stated by the district committee recommendations of sizes ranging from 30,000 barrels to 80,000 barrels and that after these designs have been received by the national chairman, they be submitted by him to the district committees for approval.

In addition it was recommended that the district committee make similar reports covering rivited tanks of less than 30,000 barrels capacity, welded tanks of less than 30,000 barrels capacity and bolted tanks; also that the national chairman be requested to handle these reports in the same manner as has been outlined for the large storage tanks. Also it is recommended that the report of the general committee shall be submitted to the fire prevention committee for their criticism, before it is sent to the various district committees.

Capt. J. L. Lucey, Lucey Petroleum Corp., Dallas, one of the early leaders in the standardization work

Boiler Specifications Decided On At Dallas Meeting

DALLAS, June 18

METHODS of calculating horsepower were given considerable discussion at the standardization meeting of the special committee on oil field boilers, of which A. B. Steen of The Texas Co. is national chairman. It was agreed that 10 square feet of heating surface should be calculated in the manner outlined in the A. S. M. E. code, providing that the total area of surface in actual contact with the hot gases be the method of calculation.

It was pointed out in a discussion that both the oil country trade and the manufacturers would be greatly benefitted by reducing the number of sizes of boilers, and after a thorough discussion and comparison of records showing the demands on the various manufacturers present, it was unanimously agreed to recommend the adoption of the following sizes:

Size of Boiler	Working Pressure
50	150 lbs.
65	175 lbs.
85	175 lbs.

It was unanimously agreed that it would be advisable to standardize all smoke stacks and bonnets, and that the smoke stacks on all the boilers should be interchangeable and should be made out of 12 gauge iron and not less than 28 feet in length and should be made in two sections of equal length.

It was unanimously agreed to recommend standard size of man hole for all boilers; and 11 inches x 15 inches was recommended as the proper size.

It was unanimously agreed to standardize on handholds, making the size of the hand holes in the smoke box end 3½ inches x 4½ inches, and all other hand holds 3 inches x 4 inches, and that this should be located as follows: 4 in outside wrapper sheet on a line with crown sheet; 2 in throat sheet and 2 in front outside furnace sheet as close to mud rim as possible; 1 below tubes in rear tube sheet; 1 in front outside furnace sheet on a line with crown sheet.

It was unanimously agreed to adopt a 3 inch steam opening on all sizes of boilers as hereinbefore listed, with the exception of tubular boilers larger than 100 horsepower, which should have a 4 inch opening; shell opening to be standard thread connection.

It was unanimously agreed to recommend standardizing on the feed water connections, the boiler gauge, gauge cock connections and blow off connections as follows:

(a) Two feed water connections to be located on opposite sides of barrel of the boiler, each 1½ inches bushed to 1¼ inches for the above mentioned boilers; all tubular boilers under 100 horsepower and over 75 horsepower should have 2 inch openings; and all above 100 horsepower should have 2½ inch standard thread openings.

(b) One blow off connection to be lo-

	50 H. P.	65 H. P.	85 H. P.
40 Guy Wires	1	4	4
Steam Gauge 0 # to 300 #	1	1	1
Brass Radiator Syphon with Cock & Test Gauge Connection	1	1	1
2" Brass Pop Valve ASME	1	2	2
Gauge Cocks	3½"	3½"	3½"
Blow Off Cocks	1—1½"	1—1½"	1—1½"
Globe valve for feed water	1—1¼"	1—1¼"	1—1¼"
Horiz. Check Valve for feed water	1—1¼"	1—1¼"	1—1¼"
Nipples	3—1½x2½"	2—1¼x2½"	2—1¼x2½"
Nipples		1—1½x2½"	1—1½x2½"
Brass Bushings	1—1½x1¼"	1—1½x1¼"	1—1½x1¼
Water Gauge Connections	1 set	1 set	1 set
Water Gauge Glass	1—5/8"	1—5/8"	1—5/8"
Niggerhead	1—3"	1—3"	1—3"
Steam Outlet Nipple	1—3x4	1—3x4	1—3x4

cated in the bottom of the throat sheet under barrel 2 inch in size and bushed to 1½ inch with a brass bushing; all tubular boilers larger than 100 horsepower should have 2½ inch openings of standard thread connection.

(c) ½ inch water gauge connection with ⅝ inch standard fittings for ⅝ inch gauge glass; all tubular boilers over 100 horsepower to have ¾ inch gauge connections.

(d) ½ inch gauge cock connection.

As the majority of the committee favored the location of the dome over the fire box, it was suggested that it be placed there; and that on boilers where the shell is 48 inches in diameter or larger it was the preference that the diameter of the dome be approximately 36 inches or larger.

It was unanimously agreed that it would be advisable to adopt a standard list of fittings to be shipped with each boiler as shown in table on previous page.

It was moved, seconded and unanimously carried that the Manufacturers Committee try and adopt at an early date uniform dimensions, such as width, height, length, position of dome, etc., of boilers of the same horsepower, which is believed by the Committee to be a great advantage to the operator in establishing battery of boilers in stations on properties where different makes of boilers have been used.

The following was adopted:

(a) Front head, above tubes, to be stayed with diagonal stays.

(b) Rear Furnace sheet above crown sheet to be stayed with diagonal stays.

(c) 11 x 15 inch man hole to be placed in shell above tubes.

(d) Safety valve connection to be placed on side of dome.

Cable Drilling Tool Joints Standardized

WORK of the special American Petroleum Institute committee on standardization of cable drilling tool joints has been completed and 35 companies have been authorized to use reference master gages for these joints.

This statement was made June 17 to the general standardization conference at Dallas by C. A. Young, director of standardization of the Institute, in the absence of Thomas Fleming, Jr., of the Oil Well Supply Co., Pittsburgh, national chairman of the special committee.

Mr. Young said that in accordance with the committee's specifications the A. P. I. master gages will be distributed as follows:

Washington—One set of A. P. I. master gages with the Bureau of Standards.

Pittsburgh—One set of A. P. I. reference master gages with the Pittsburgh Testing Laboratory, who have agreed to act as custodian for the Eastern District.

Los Angles, Cal.—One set of A. P. I. reference master gages with the Smith and Emery Co. (co-operating with the Pittsburgh Testing Laboratory, Pittsburgh), who will act as custodian for the Pacific Coast District.

Bartlesville, Okla.—One set of A. P. I. reference master gages with the Bureau of Mines, who will act as custodian for the Mid-Continent District.

These custodians have agreed to charge an inspection fee of $1 for each pair of gages. The Bureau of Mines at Bartlesville will make no charge for the present unless the work of making tests increases to such an extent that a charge is necessary.

General circular No. 2, issued for the first time from Mr. Young's office in Dallas says: "we are glad to announce that every one participating in this group order has specified the prices on column 4, less 15%, as noted in our circular of November 28, 1924, to assist the Institute in liquidating the cost of its master gages. We have exceeded the quantity and the prices originally specified for the group order will be reduced pro rata in accordance with the understanding with Messrs. Pratt & Whitney.

Delivery of Gages

"We are advised by Pratt & Whitney that they are manufacturing these gages in the following manner:

"Each size is brought through in one lot and completed. This insures that each purchaser will secure that particular gage at the same time as the others included in the group order. They have arranged their schedule of manufacture to bring these gages through in the following order, basing the order of priority on the quantity ordered:

1. 2¾ x 3¾
2. 2 x 3
3. 3¼ x 4¼
4. 4 x 5
5. 3½ x 4½
6. 2¼ x 3¼
7. 1⅝ x 2⅝
8. 2½ x 3½
9. 3 x 4
10. 4 x 5½
11. 4¼ x 6

Delivery to commence the middle of June and to be completed about September 15.

Selection of A. P. I. Master Gages

"The four gages in each size that are nearest to the theoretical perfect will be selected as the A. P. I. Reference Master Gages. These four gages will be sent to the Bureau of Standards at Washington for calibration and the Master Gage will be selected by the Bureau of Standards from one of these four. They will then be returned to Pratt & Whitney at Hartford, Conn., for final stamping.

CABLE DRILLING TOOL JOINTS

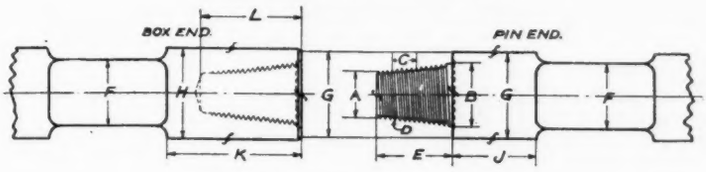
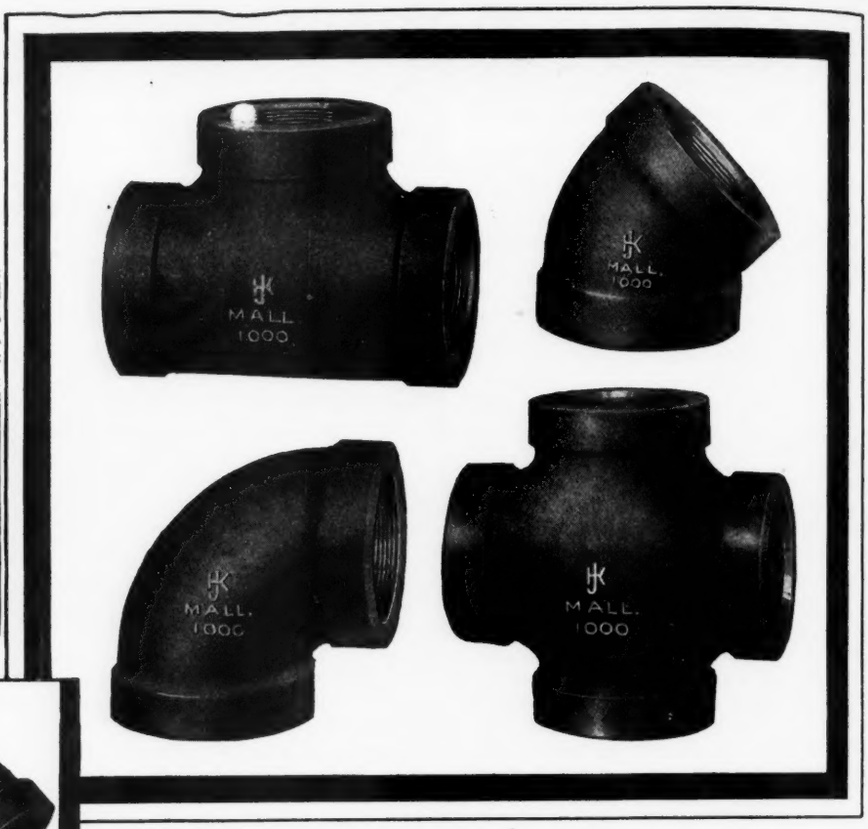


TABLE I.—DIMENSIONS OF AMERICAN PETROLEUM INSTITUTE CABLE DRILLING TOOL JOINTS

A x B	C	D	E	F	G	H	J AND K					
Nominal Size of Taper Joint	Number Threads per Inch	Type of Thread	Length of Taper Pin	Size of Wrench Square	Diam. of Pin Collar	Diam. of Box Collar	Length of Collars		For Stems	For Drilling and Fishing Jars	For Drilling Bits	For Fishing Tools and Substitutes
1⅝" x 2⅝"	7	Flat U. S. Form	3½"	2¾"	3⅝"	3¾"	Pin Collars	J	4"	4"	7"	4"
							Box Collars	K	7"	6"	.....	6"
2" x 3"	7	Flat U. S. Form	4"	3¼"	4¼"	4⅜"	Pin Collars	J	5"	4½"	7½"	4½"
							Box Collars	K	9"	7"	.....	7"
2¼" x 3¼"	7	Flat U. S. Form	4"	3½"	4½"	4¾"	Pin Collars	J	5½"	4½"	8"	4½"
							Box Collars	K	9½"	7"	.....	7"
2½" x 3½"	7	Flat U. S. Form	4¼"	4"	5"	5¼"	Pin Collars	J	6"	5"	8½"	5"
							Box Collars	K	10"	7"	.....	7"
2¾" x 3¾"	7	Flat U. S. Form	4½"	4"	5¼"	5½"	Pin Collars	J	6"	5"	8½"	5"
							Box Collars	K	11"	8"	.....	8"
3" x 4"	7	Flat U. S. Form	4¾"	4½"	6"	6¼"	Pin Collars	J	6½"	5½"	9"	5½"
							Box Collars	K	11"	8"	.....	8"
3¼" x 4¼"	7	Flat U. S. Form	5"	5"	6¼"	6½"	Pin Collars	J	7"	6"	10"	6"
							Box Collars	K	12"	9"	.....	9"
3½" x 4½"	7	Flat U. S. Form	5½"	5"	6½"	6¾"	Pin Collars	J	7"	6"	10"	6"
							Box Collars	K	12"	9"	.....	9"
4" x 5"	7	Flat U. S. Form	5½"	5½"	7"	7⅜"	Pin Collars	J	7½"	6½"	11"	6½"
							Box Collars	K	12"	10"	.....	10"
4" x 5½"	7	Flat U. S. Form	6½"	5½	7½"	7¾"	Pin Collars	J	7½"	6½"	11"	6½"
							Box Collars	K	12"	10"	.....	10"
4¼" x 6"	7	Flat U. S. Form	7"	6"	8¼"	8⅝"	Pin Collars	J	8"	7"	12"	7"
							Box Collars	K	13"	10"	.....	10"



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Symbol *of* Progress

THESE pages are dedicated to the simple efficiency of producing oil—to the pioneering genius of the oil producer and ever-present skill of the equipment manufacturer.

No matter what obstacles nature has put in their way, no matter what surprises have been discovered in new formations, nor to what depths the drill has had to pierce, the great resourcefulness of the oil producer and his associates has always found a way to overcome them and bring forth the ever-increasing hundreds of millions of barrels of oil the world has demanded each year.

For more than 60 years the advance has gone on against steadily increasing odds. Methods have advanced and equipment improved, from the small pole drilling outfit to the big heavy derricks of today. There has been no tardiness of improvement.

Some talk of "the great waste" in producing methods, of their "crudeness" mechanically. They confuse the rugged simplicity, the efficient simplicity, of oil field operations with the nickel-plated finery of many manufacturing operations.

The derrick rises proudly against the sun, wind and storm of the mountain and prairie, a true symbol of oil producing methods. It is out in the open, pioneering alone against the elements of nature today to overcome nature's work thousands of years ago, and thousands of feet below the surface of the earth. It stands for bigness. It drills by the thousands of feet, it produces oil by the thousands of barrels—yes, thousands in a day, even in an hour.

Compare that with manufacturing in thousandths or ten-thousandths of an inch, at a bench or lathe, sheltered in comfort winter and summer, with workmen who return to comfortable homes and families every evening by street-car and automobile, their very skill and comfort made possible only by the product of the derrick. The oil producer and his workers know naught of such refinements.

Oil producing and its equipment have progressed steadily with the world's needs for petroleum and, if we might venture an opinion, as skillfully and efficiently as any other industrial operation—as the following pages will disclose.

But the producer's achievements have not been heralded year by year to the industrial world of the cities. The producer and his associates have been far away, out beyond railroad and paved highway. When these means of easy travel brought the men from other industries (and that is just about what happened) to the monument of the oil industry — the derrick, these visitors, seeing with strange eyes, were critical of the "crudeness" and their minds almost unconsciously began conjuring various things that would make this operation of pioneers look more efficient.

But looks and efficiency are different. The city-loving world of recent years has been numbed—a critic might say—by appearance of efficiency until today a sterner demand for results has started some business men to wonder if the picture was as they thought. They have started search behind the nickel-plate for that rugged simplicity and efficiency that marks the lonely oil derrick.

The oil derrick needs no pen—product of the ten-thousandths of an inch world—to defend it. It has stood the blasts of nature and the novice for a long lifetime.

But even though it needs no aid from a puny pen, we offer it these words that, perhaps, the derrick of the oil industry may be more greatly respected, its efficiency more highly honored and that we, who live in its shadow, may cherish its homely but magnificent service the more.

WARREN C. PLATT, *Editor*

Cleaning Out With Air Revolutionary Advance in Production Methods

By A. F. Hinton

N. P. N. STAFF WRITER

TULSA, June 20

THE use of compressed air for removal of cavings, sand particles and other debris from wells, or, in other words, for "cleaning out" apparently is one of the most striking improvements in the technic of oil production in the history of the industry. In the opportunities it presents for the saving of time and labor, as well as in the increasing of production from pumping wells, it bids fair to revolutionize cleaning out practice, and it is highly important that every producer should know what has been accomplished along this line so far.

After having become convinced in his own mind that compressed air cleaning out is a success and a big time—and money-saver, the producer first wants to know how this successful invention can be applied to his own production. Can he build a machine and operate it himself, must he buy such a machine from a certain company, paying royalty for the use of it, or will air cleaning out be done by contract by the company putting out the machine? All of these questions will be discussed later on in this article.

Before going any farther, it is perhaps well to say that air cleaning out, while admittedly successful, is still in the experimental stage, in that experience on various wells in different fields and sands is constantly adding to the knowledge of what can be done with this method, and is necessitating, also, the development of additional devices to contend with the problems to be solved. It is a new thing. The method and theory have been proven to be sound, but skill in actual operation under varying conditions must be gained by experience.

The basic idea of cleaning out with air is simply that of introducing a few barrels of water into the well, placing the tubing just at top of casings, and giving the well a "shot" of highly compressed air through the tubing. Great amounts of material are blown from the well in this manner, going up between the tubing and the casing and discharging through a deflector into a slush pit. When this process has been repeated until no more debris comes up, the action is reversed, the air is introduced down the casing and sand and other small material are blown out through the tubing. Finally, small amounts of water are repeatedly injected into the hole with the air for washing out, which leaves the well thoroughly cleaned and ready to be put back on production.

Portable Compressor Necessary

Use of this process involves at once providing of machinery for compressing air and delivering it to the well, and, inasmuch as air compressors and air tanks are not usually found on production properties, it became necessary to provide a portable outfit that could be moved from one well to another and from one property to another. This consisting generally of a compressor and direct-connected engine, an air tank, a pulling machine, and a tractor or other motive power for moving the "circus train" about from one location to the next. Several companies have designed special compressors for this work and experience has brought about refinements in the make-up of the train. An instance of this is in the use of a friction-wheel device for handling the rods and tubing, releasing the tractor for other work while a well is being cleaned out.

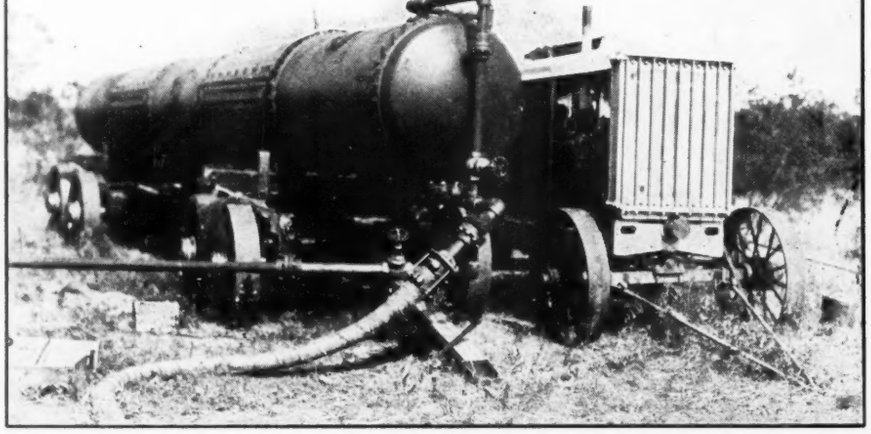
Given the proper outfit, considerable skill and experience are necessary for successful operation. Proper handling of the tubing is important, as getting it either too high or too low in the hole prevents successful results. Experience tells the operator whether or not he is getting a proper amount of material out of the well at each shot and enables him also to determine when the well has been thoroughly cleaned out. Sands of varying porosity present different problems, while sands on which vacuum is maintained also have to be dealt with differently from other sands.

The dominant factor in the air-cleaning out situation at present is the Tidal-Dunn Co., formed by the Tidal Oil Co. and the firm of Smith-Dunn & Lewis, petroleum engineers. Following installation of air plants as a method of increasing production on some of its properties northeastern Oklahoma, under engineering direction of Smith, Dunn & Lewis, Tidal Oil Co. officials became interested in the air-cleaning out idea, the Tidal-Dunn Co. being organized as a result. Patents have been applied for on the process and on a number of its features.

Officers of the Tidal-Dunn Co. are A. A. Beard, president; I. L. Dunn, vice-president and general manager; D. W. Bell, secretary-treasurer. In addition to the president and vice-president, the board of directors includes the following:—J. O. Lewis, W. C. Franklin, and E. H. Salrin.

Allied with the Tidal-Dunn Co. is the Warmac Co., of Nowata, Okla., originally composed of W. W. Warner, T. R. McSpadden, and Smith, Dunn & Lewis. This company was formed to clean out wells by contract in the Nowata district. When the Tidal-Dunn Co. was formed it took over the interest of Smith, Dunn & Lewis in the Warmac Co. The two companies have since co-operated in developing the process.

Officials of the Jones Oil Well Reamer Co., Earl G. Hastings, and John W. Coast, president of the Alimo Oil Co. are preparing to place on the market an air-cleaning device with which will be con-



Air tank and Chicago Pneumatic power unit, Tidal-Dunn air cleaning-out process, Flat Rock district, Okla.

solidated the Jones reamer, or "Devil's Club." Their idea is that in the interval while the air tank is being charged between "shots," operation of the reamer will help materially in the cleaning-out process. This will knock down loose particles of sand from the sides of the shot-hole, and rid the sand of its surface accumulation of paraffin. When this material has been thoroughly blown out, it seems the hole should be in excellent shape.

Gypsy Oil Co., Too

The Gypsy Oil Co. also has constructed, and is using, an air-cleaning-out machine, built along its own ideas. The Gypsy has taken no action toward applying for a patent. Hollis P. Porter, chief production engineer for the Gypsy, designed that company's machine, and wrote the original specifications for the engine-compressor unit it is now using.

Plan Of Distribution

So far, the Tidal-Dunn Co. is the only company to go into the air-cleaning business on a commercial scale. This company's plan of distribution of its machines is to collect from the purchaser the cost of a complete outfit as an initial payment. Then for each well in which the outfit is used, the purchaser makes "deferred payments" of five cents per foot of depth of the well. In other words, the purchaser buys the machine outright at cost, and pays a royalty of five cents per foot for its use. The Tidal-Dunn furnishes an experienced man for each outfit for two weeks free of charge and gives engineering service and advice during life of the purchase agreement. If the company finds it is justified in charging a lower rate per foot in the future, the lowered rate will apply to agreements already made. Also, the Tidal-Dunn Co. will give to all signers of the agreement the benefit of its further experience and experiments in cleaning out with air, and will allow them to use all improvements or refinements which may be worked out. It will also protect them against suits for patent infringement.

In order to demonstrate the machine to a prospective purchaser, the Tidal-Dunn Co. also has worked out a contract under which it will clean out a well or a group of wells at certain charges, but it does not intend to go into a general cleaning-out contract business at this time. It expects to sell machines and to license reputable contractors who will clean out wells under contract for companies which may not be justified in purchasing machines for their own use. Under this contract, the Tidal-Dunn Co. will furnish the machine complete with all connections and accessories and also fuel and labor for operation of the machine. The producing company furnishes the pulling mast or derrick, the tubing, all tools and tackle for handling the rods and tubing, a water supply, and a water tank of not less than 10 barrels capacity.

For each well cleaned out under this contract, the charge is $100.00 a day of nine hours, or, if more than one outfit is being used, it is $100.00 a day per machine for the time it is operated with due diligence. For each machine placed at the disposal of the producer and not used, a charge of $6.00 an hour is made during working hours. After the well has been cleaned to bottom or to an agreed-upon depth, washing the hole is paid for at the rate of $10.00 per "shot" of air.

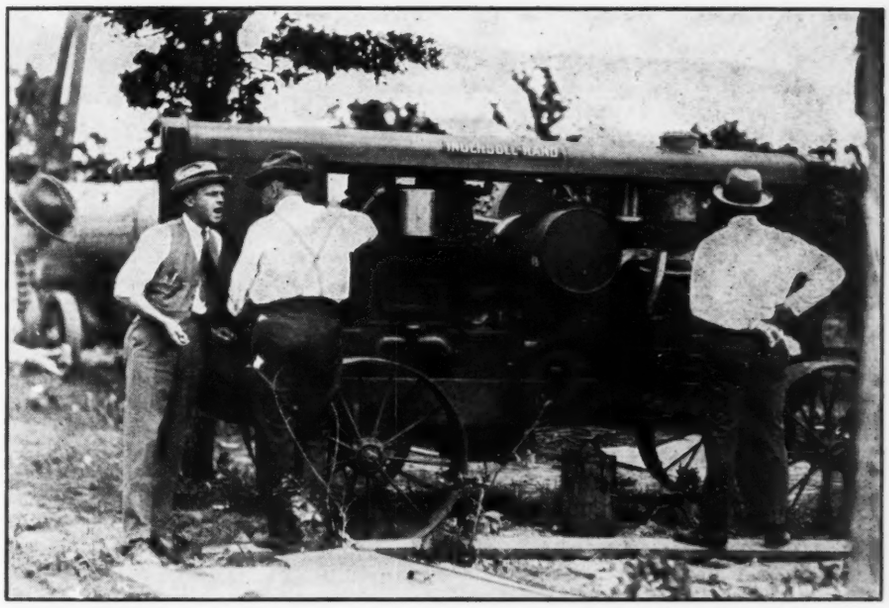
For pulling rods and tubing and other usual services, the usual rates for such service in the district are charged, or the producing company has the option of doing this work with its own men. As time goes on, flat contract rates will be set in districts where enough experience has been had to justify them. In the Nowata district, the Warmac Co. contracts to clean out wells at a flat rate of $200.00 per well.

The Tidal Oil Co., has used several of the first few machines made under the purchase agreement and license contract. Several other companies are using the machines to clean out on the contract basis, as a preparatory try-out before buying them. John H. Markham, Jr., Independent producer, has been using a Tidal-Dunn machine with considerable success on two of his leases near Bixby. The process is also being tried out by the Cudahy Oil Co. (National Refining Co.) in the Bartlesville district. The Pure Oil Co. is using one machine in the Healdton field. Marland Oil Co. recently contracted to have eight of its wells cleaned out by the process in the Wildhorse district, Osage county. The Tidal Oil Co. is operating a machine on a nearby lease, and some interesting comparisons will be made between performance of the machines and results obtained. The Tidal outfit is using an Ingersoll-Rand power unit while Marland will use a unit manufactured by the Chicago Pneumatic Tool Co.

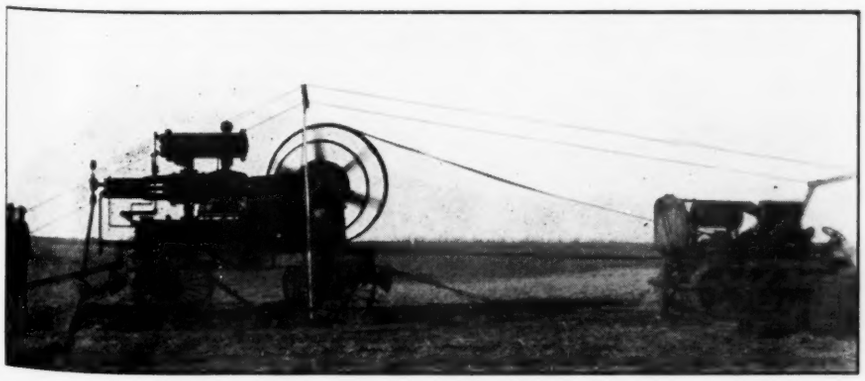
These machines having proved satisfactory, the Tidal Oil Co. is now preparing to put them on a production basis. No changes in the model are now contemplated.

Cost to Producer

In the event of a purchase of one of the Tidal-Dunn outfits, the initial cost to the producer would be approximately $7,000 to $8,400, depending upon the equipment wanted. The outfit consists of the engine and compressor unit, the air tank and wagon, all necessary pipe, connections and air hose, a Ford truck, and a set of Dewey friction wheels for pulling and running rods and tubing. The com-



Frank Lee. Tulsa representative for Ingersoll-Rand, doing his stuff for benefit of I. L. Dunn. A muffler on the engine would have made conversation less difficult. Bob Beyer, Ingersoll-Rand service engineer at right.



Jones-Coast air-cleaning outfit in field near Tulsa

pany does not specify any certain power unit to be used with its outfit, and will furnish any that it feels sure will prove satisfactory for the job. So far, the Chicago Pneumatic and Ingersoll-Rand units have been tried out by the Tidal-Dunn Co. of the above described types but two other types were used at the first trials of this process.

Several companies have designed special compressor and engine units for use in pneumatic well-cleaning, as there was no existing type that would do the work in a satisfactory manner and still meet the requirement of portability. As stated, the Tidal-Dunn Co. is using Ingersoll-Rand and Chicago Pneumatic units. The Gypsy Oil Co. is using a unit built by the Rix Compressed Air & Drill Co., of San Francisco. The Jones-Coast people are using an older type, belt-driven, three stage Ingersoll-Rand not designed specifically for cleaning-out work.

Design of Power Units

The Ingersoll-Rand machine consists of an 8x3¼x8 type 20 2-stage duplex compressor for 500 pounds discharge pressure operation. The unit has a double cooling system, consisting of separate pumps for engine and compressor, and two radiators. The air passes through an intercooler between the two stages of compression. The compressor is direct connected through gears, with no clutch, to a 65-h.p. Waukesha motor. Air filters are provided both for the compressor intake and the carburetor. The outfit is mounted on a cast steel frame with extra wide steel wheels, and weighs about 8400 pounds complete Its cost is approximately $4,500.

The Rix unit consists of a 10¼x4⅜x6 vertical 2-stage duplex type compressor with piston displacement of 175 cubic feet at 600 r.p.m. It is designed for 475 pounds final discharge pressure. It is direct connected, with clutch, to a 4¾x6 Beaver 6-cylinder engine with electric starter. This unit also has dual water system with two pumps and two radiators. It is mounted on channel frame of structural steel and has steel wheels with wide rims. It weighs about 6500 pounds complete, and costs approximately $4,100.

The Chicago Pneumatic Tool Co. unit weighs about the same as the Rix. The compressor is a high-pressure, two-stage, vertical, designed for a piston displacement of 164 cubic feet at 700 r.p.m., with final discharge pressure of 500 pounds, having actual delivery of approximately 120 feet. The engine has been specially built for this unit. It has four cylinders, 5½x7, with each cylinder on an individual block. The compressor and engine are direct connected by means of a clutch without reduction gears. The cylinder sizes on the compressor are 9 inches diameter by 6-inch stroke on the low pressure and 3¾x6 on the high. An intercooler is provided, and also individual radiators. The frame is solid cast steel. The wheels are equipped with roller bearings. The unit complete weighs about 6500 pounds and costs approximately $2,800.

The Tidal Oil Co. is still using its experimental plant consisting of a Dill tractor belted to a two-stage horizontal Ingersoll-Rand compressor and the Warmac Co. is using an outfit consisting of an Ingersoll-Rand compressor mounted on a trailer and belted to a McCormick-Deering International tractor which also pulls the train and operates a winch for handling the tubing. The Warmac outfit has proved particularly satisfactory for shallower wells and costs considerably less than the new types which were designed for deeper wells.

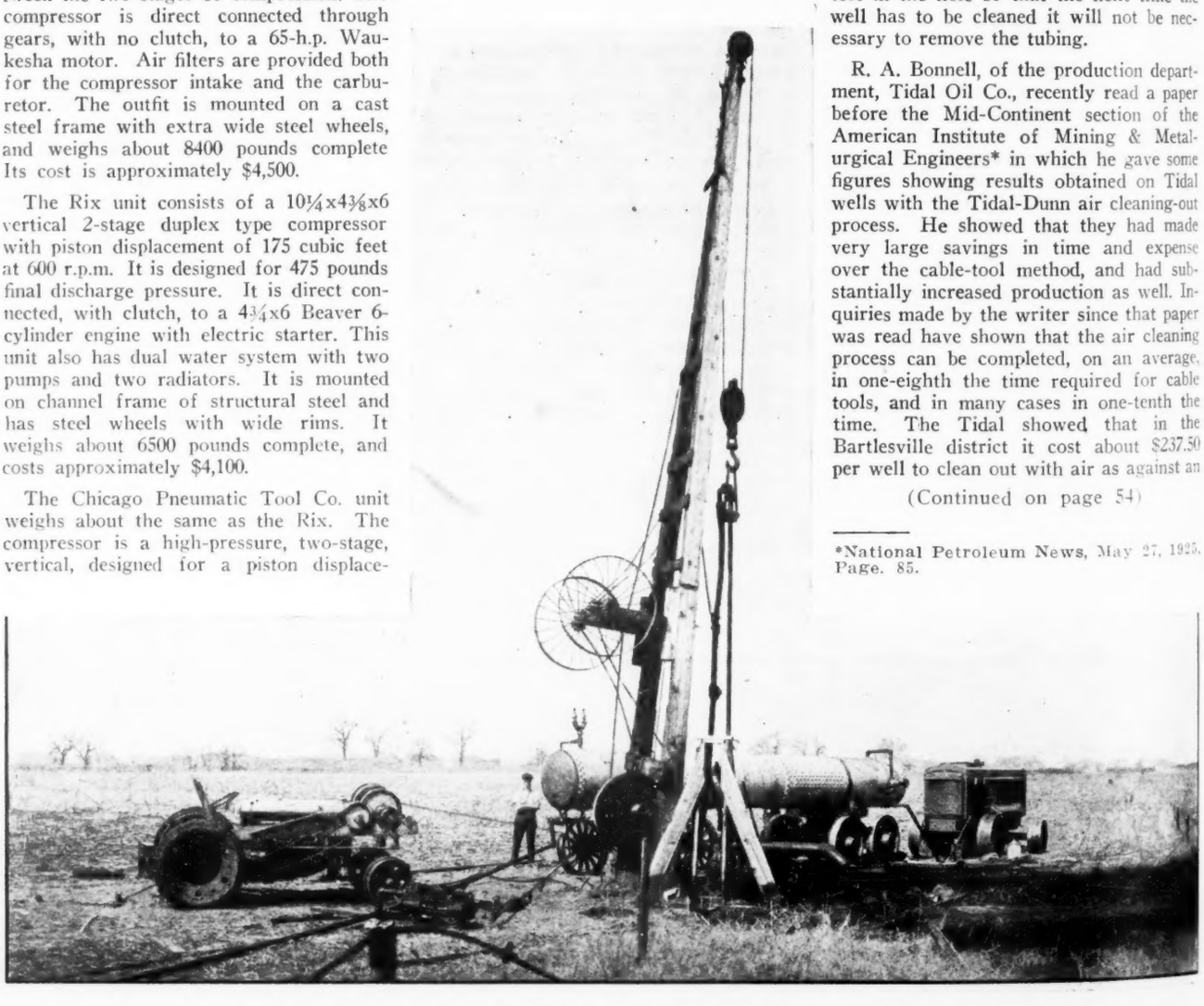
In operation, the compressor and air tank are connected and placed near the well and a pressure of from 475 to 500 pounds is built up in the tank. Rods and tubing are removed from the well. A special shoe or piece of heavy pipe is placed on the bottom of the string of tubing and the pipe is lowered into the hole to bottom (good tubing necessary). A specially designed stuffing-box is used, through which the tubing is raised or lowered. Air is delivered from the tank through a flexible hose connection to a special swivel and into the tubing. Several barrels of water (usually three or four) are introduced into the well, the air valve is opened and the "shot" delivered.

The pressure in the tank is usually run down to about 100 pounds. One shot lasts approximately two minutes. The tubing is lowered as the casings are removed from bottom and the process repeated. It requires from 35 to 45 minutes to build up the air pressure from 100 to 500 pounds. The discharge from the shot goes through the head and off through a deflector to the slush pit. In reversing the process, the deflector side of the head is plugged, air is let into the casing and the discharge comes up through the tubing, and through the swivel. At conclusion of job, the tubing with its special shoe is left in the hole so that the next time the well has to be cleaned it will not be necessary to remove the tubing.

R. A. Bonnell, of the production department, Tidal Oil Co., recently read a paper before the Mid-Continent section of the American Institute of Mining & Metalurgical Engineers* in which he gave some figures showing results obtained on Tidal wells with the Tidal-Dunn air cleaning-out process. He showed that they had made very large savings in time and expense over the cable-tool method, and had substantially increased production as well. Inquiries made by the writer since that paper was read have shown that the air cleaning process can be completed, on an average, in one-eighth the time required for cable tools, and in many cases in one-tenth the time. The Tidal showed that in the Bartlesville district it cost about $237.50 per well to clean out with air as against an

(Continued on page 54)

*National Petroleum News, May 27, 1925, Page. 85.



Gypsy Oil Co. Pneumatic Cleaning-Out Machine at work near Jenks, Okla., showing Rix power unit.

TRANSIT PUMPS

On Terms!

Here is an honest statement of facts:

We have in our warehouse at Oil City, Pa., a large stock of TRANSIT PUMPS.

The carrying charges on these stock pumps includes warehouse expense, interest on investment and insurance, and amounts to considerable. Besides, we need the room for manufacturing.

On the other hand, there are, no doubt, quite a few companies who could use some of these stock pumps very profitably, but who do not have the capital to invest at the moment.

This is a peculiar condition. It is costing us money to continue to stock the pumps; it is costing you money to do without.

There is one way we can get together on this; and that is to have one of our district office managers go over your conditions and if you and he agree that one or more of the pumps which we have in stock will save you money—you get the pumps.

Payments will be arranged to suit the convenience of responsible people.

Each month we issue a bulletin, "Pumps and Engines in Stock." The items listed therein as being in stock at Oil City will be furnished under this plan.

NATIONAL TRANSIT PUMP & MACHINE COMPANY

OIL CITY, PA.

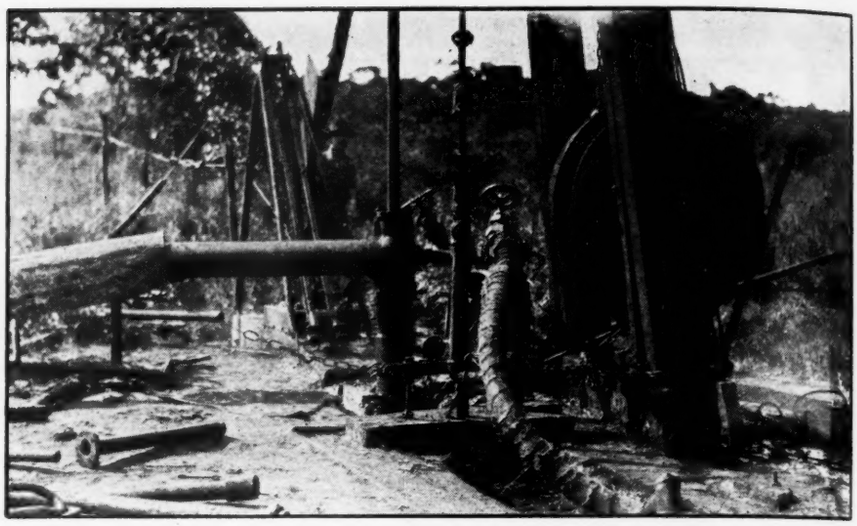
DISTRICT OFFICES: New York, Philadelphia, Pittsburgh, Cleveland, Tulsa, Houston, Denver

(Continued from page 52)

average cost of $1,000.00 with cable tools in the same district. The time given as an average with the air process was three days as compared with 51 days with cable tools. The cost figure for the air process included fuel, labor, material, depreciation, and royalty.

Cleaning Out Expensive

On a great many small-production properties, where each well makes, say, ¼ to ½ barrel daily, the expense of cleaning out with old methods is not justified economically, as the increased production resulting is not enough to offset the cost of the process. It costs as much to clean out a well making ¼ barrel as it does for one making ten times that amount in the same field and at the same depth, and may take as long. Almost any well, however small, will justify the expenditure of $240.00 and three days' time to get it thoroughly cleaned out and to increase its production.



Surface connections, Tidal-Dunn air cleaning-out process, on well in Flat Rock, district, Okla., just north of Tulsa

In the progress of the air-cleaning process to its present stage of development, many diffculties had to be overcome, and it was necessary to solve many problems that did not present themselves until the machine was actually put in use in the field. In the early days of the process, in the Nowata district, the idea was simply to blow the wells out by shooting the air through the tubing and continuing the process until no more material was brought up. The first well on which the new method was tried responded nobly by going back on the pump at materially increased production. The next several wells, however, gave much trouble, and would not pump after they apparently had been thoroughly cleaned out.

Studying over the reason for this brought about the idea of reversing the process for a final washing-out, and that turned out to be the solution of the problem. By putting air down inside the casing and flushing the well up through the tubing, great quantities of material were brought up. Most of this is in the form of "soup," so-called, being a heavy mixture of water with all the fine debris remaining in the hole after the preliminary air shots. This material could not be gotten out by shooting air down the tubing, but was floated out in suspensoin when the air current was reversed. All the troublesome wells were worked over with this new wrinkle, and all were successfully put back on the pump at increased production.

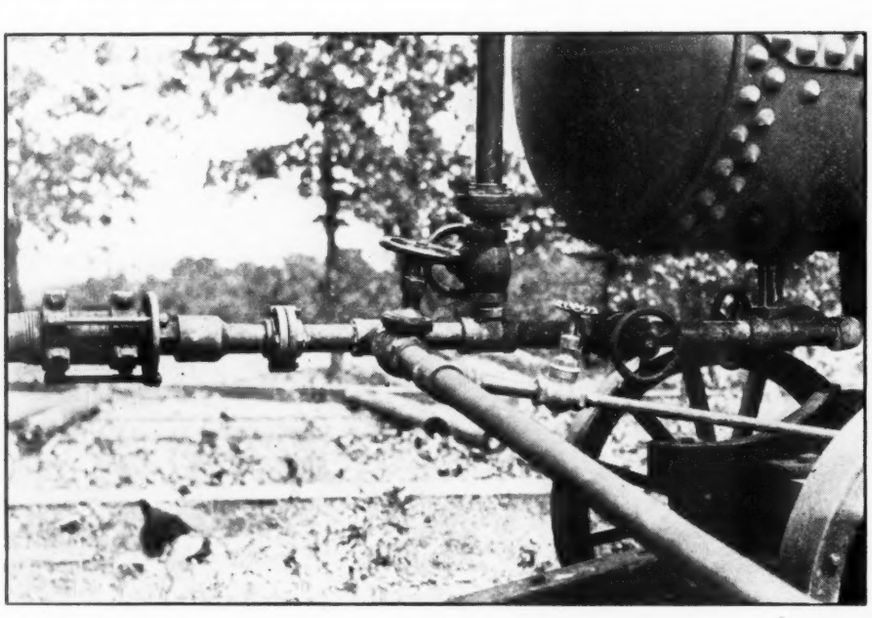
This final reversing of the process is now standard practice. It is followed by a last washing, which is accomplished by jetting the hole with compressed air and water at the same time. This process usually brings out considerable amounts of sand and leaves the well as thoroughly cleaned out as it is possible to get it. The fact that the last washing brings up sand refutes to an extent the belief held by some producers that action of the air-and-water process would tend to "plaster up" the sand.

In wells where no vacuum is maintained on the sand, it is likely that the air-cleaning method has a revitalizing effect on the producing formation. As the highly compressed air is shot into the bottom of the hole, some of it probably goes into the sand for some distance, temporarily displacing what oil there is in the pore-spaces. As the air rushes up the tubing and pressure from the shot diminishes, air that has penetrated the sand rushes back into the hole, forcing oil with it. This tends to clear the pores of the sand, and probably helps to cause increased production of the well.

Vacuum Gives Trouble

High vacuum maintained on the sand has probably been the biggest difficulty to overcome in perfecting the air cleaning-out process. The tendency in this case, especially where the sand is open and porous, is for the compressed air to be dissipated into the sand with no effect on the cavings in the hole. In some vacuum wells large quantities of water and several shots of air were introduced without getting anything back at the surface. All three of the companies operating air cleaning-out machines have designed appliances which they state obviates this difficulty, and renders the process as successful in the vacuum-wells as in any other. The nature of these appliances, however, is not divulged. The vacuum is used to aid in the cleaning out process, allowing the well to go back on vacuum at night. This tends to cause the walls of the hole to cave, thus adding to the material to be blown out when operations are resumed in the morning.

Other troubles are met with in cleaning out with air, but most of them can be avoided as experience teaches the proper procedure at various stages of the process. At times, the material will "bridge" in the tubing and will plug it up so tightly that the air shots cannot remove it. When this happens, sometimes the tubing can be raised slightly and dropped hard enough to dislodge the bridge.



Connections to air tank, Tidal-Dunn air cleaning-out process.

General view of Bradford-Dewey Friction Hoist as used in the Wildhorse district, Osage county, Okla., by Tidal Oil Co. The well is being cleaned out by compressed air.

Friction-wheel Drive From Truck To Pull Rods and Tubing

Staff Special

TULSA, June 20

ANYTHING that will reduce the cost of pulling rods and tubing from pumping wells, through saving of time and labor and through use of simpler and less expensive machinery, is interesting to producers, both large and small. Pulling-out expense is always a large factor in the expense of lease operation, and often represents the dividing line between profit and loss, especially when it has to occur unnecessarily often. Many companies are making analyses of well-troubles which are reducing pull-out jobs materially in number. There always will be times, however, when a well must be pulled, and when those times come, it is just as well to be able to do the job cheaply.

One recent invention now being used with success in the Mid-Continent field is the Bradford-Dewey Friction Hoist, which is shown in action in the picture accompanying this article. This outfit uses a friction drive from the wheels of an automobile truck or tractor to a pair of friction wheels which drive a hoisting drum. In operation, it places a man on the derrick floor, instead of back in the driver's seat, as when a tractor and winch are used, and thereby saves one man's services. It obviates the necessity of providing a winch or tractor, and provides a means of transportation for the crew, which ordinarily would have to be provided even if a tractor or other power were used.

The outfit as now manufactured by the Bradford Rig & Reel Co., of Tulsa, is designed for wells up to about 2,000 feet in depth, and can be used in any well where a pulling machine can be used. A heavier outfit for use with standard rigs has been designed, but has not been placed on the market as yet. The set now on the market sells for $250.00.

Through the use of hooks connected with a steel cable to the spooling shaft, and hooked to the rear axle of the truck, the wheels of the latter are drawn up against the friction wheels. They are held in contact or released by a lever. Another lever operates the braking mechanism when going into the hole. When the brake is released, this lever is used to speed up the engine of the truck when pulling out, through use of an extension throttle. Thus when applying the brake the truck motor is at the same time slowed down. Only a slight motion of the friction lever is necessary to put the wheels in contact or to release them.

These friction wheels, which have been adopted as standard equipment on air-cleaning out outfits by the Tidal-Dunn Co., were invented and patented by Clyde Layton, now general superintendent of the Tidal-Dunn Co., Earl Beard, drilling contractor, and W. G. Schroder, cleaning-out contractor. These men formed a small company, known as the Dewey Friction Wheel Co., with headquarters in Bartlesville, and manufactured the wheels there for a time. Later they were taken over by the Bradford Rig & Reel Co., which manufactures the wheels in Tulsa. They are being used by several companies in the Mid-Continent, and 12 sets are in use in Russia.

BARTLESVILLE, OKLA.—George Failing,, of the Garber Tool & Supply Co., is installing a complete system for accurate temperature control and treatment of fish tail bits. His new shop is located in the Garber field, Okla., reports Frank M. Brewster, assistant superintendent of the U. S. Bureau of Mines here.

Easier to Heat Tanks Covered With Felt

NEWARK, O., June 20.—Jacketing lease tanks to facilitate heating oil and saving fuel cost is being adopted as standard practices by the Pure Oil Co. in its central Ohio producing division.

The method used is to put laths a foot or so apart upright all the way around the tank. To the laths is tacked roofing felt. The felt is cut into lengths equal to the circumference of the tank. Beginning at the bottom, one length is tacked all the way around, then above this and slightly lapped on the first, another length until the tank is jacketed from top to bottom. Tank roofs are not covered.

Some interesting notes were kept by W. D. Stoughton, division superintendent of the Pure Oil, on a tank in Knox county. He found that during severe weather a tank that was jacketed was 8° warmer than one that was not protected, both having been heated and let stand over night before the temperatures were taken. He found that it requires twice as long to heat the unprotected tanks as it does those which are covered with the felt.

In the middle of April last year, no heat was needed to settle out water in a tank that was protected while those not jacketed required heat. The temperature of the oil as it comes from the well is held high enough to do away with heating altogether during the spring when ordinarily heating is required.

It requires about one and one-half squares of the felt to cover a 100-barrel tank.

Continental Supply Moves Offices

HOUSTON, June 20.—The Houston district offices of the Continental Supply Co., Ed J. Drake manager, will be moved about July 1 to a new building now under construction for them on Harrisburg Boulevard. The new building will have a 40 foot frontage on the boulevard and will extend back 200 feet. When completed it is to be one of the most modern equipped oil and gas supply units in the southwest.

NEW YORK, June 20.—The New York branch office of the Pressed Steel Tank Co., has recently changed its address from the Woolworth Bldg., to the Vanderbilt Concourse bldg. Porter T. Babcock remains the New York manager. The Chicago office was recently placed in charge of J. W. Thompson, after Herman Merker the sales manager was located permanently in Milwaukee. The Chicago office is at 208 South La Salle St.

Drilling Contractors Find Big Saving In Co-Operative Machine Shop

By Lawrence E. Smith

N. P. N. STAFF WRITER

WOOSTER, O., June 20

A BIT of joint effort, exerted in the right direction, can usually be counted on to produce profits and make the load lighter on all concerned. Failure to work together sometimes is costly.

A number of drilling contractors in the Wooster district have tried both. They began, of course, according to the custom that prevails in most fields of the country. Each firm worked out its own destiny, giving assistance to each other on request, of course, in such things as emergency equipment, fire fighting and the like. But there was no agreed plan of concerted action.

After about a year of working together on a matter that touches all of them, they like the co-operative plan they have adopted.

Up to about a year ago, contractors and most of the oil and gas companies in the field which run some tools had relied upon an outside machine shop. The Wooster shop, which was best fitted to handle the work was not large enough and the simultaneous occurrence of several fishing jobs and the consequent necessity for special tools would swamp the shop. Valuable time and money were lost all around, and time is certainly money to a contractor as well as to the company he is drilling for.

For one reason or another, probably a good one, the independent shop would not enlarge its facilities and the situation grew no better. So necessity brought into existence a co-operative shop, organized as a separate company, and so far as is known the only one of its kind in the United States.

Probably the reason why the company has been so successful is that it started out on the basis of any other successful business enterprise. The downfall of many a co-operative company, such as those frequently organized by farmers, has been due to the guiding principle of price cutting on the service performed or underselling the prevailing market on commodities handled. The Wooster Tool & Supply Co. avoided this mistake. Price cutting usually means that there is not a cash reserve at hand when it is needed.

Profits Re-invested

The Wooster company made a satisfactory profit in the first year of its existence and this could have been disbursed as dividend on the stock. It was not paid out because the members voted to put it back into the company in the purchase of new equipment. Some enlargements and additions are being made in machinery and the company is beginning, in a small way, to make certain drilling tools.

Here are the employes of the Wooster Tool & Supply Co., a cooperative company, and some of the representatives of companies which are stockholders. Standing left to right are Ben McCann, of Klise, Eckstein & McCann, Joe Butler, of Butler Brothers and John (Red) McCoy, Ohio Fuel Gas Co. Seated, left to right are the company employes, as follows: Harry Nolan, Harold Shaw, Bill McNeechan, Ralph Hover, Ross Cleveland, B. L. Peterson (general manager) William Pottlecheck and William Thomas.

The profits of the company, however, cannot be measured in terms of the money it earned on operations. A vast saving was effected, not capable of being measured in dollars, but real, nevertheless, in time saved to the stockholders. During the busy drilling season many a well was completed and put on production much earlier because of the contractor's being able to get his shop work done promptly and well and a lot of time was saved to all because fishing tools were to be had when required.

The company was incorporated with authorized capital stock of $25,000. Of this amount, $13,000 has been issued. The basis adopted was the issuance of one share of stock, par value $100, for each string of tools operated by the members. Thus, if a member company or firm operated five strings of tools, it would subscribe to $500 worth of stock, or five shares. There are now 130 shares of stock outstanding, divided among the following contracting and producing companies and partnerships:

Ohio Fuel Gas Co.
Logan Natural Gas Co.
Central Ohio Gas Co.
Klise, Eckstein & McCann.
Burtner, Morgan & Stephens.
Daugherty Brothers.
S. S. Hulse.
Dillon & McFrederick Brothers.
Willard Cushing.
Harry Moran (Ohio Oil Co. superintendent).

The principal operator in the district not in the company is the East Ohio Gas Co. which had its own shops at the time the new shops were set up.

Officers of the Wooster Tool & Supply Co. are J. J. Klise, president; J. C. Burtner, vice-president; B. L. Peterson, treasurer and general manager; Curt Hudson, secretary. Mr. Hudson is with the Central Ohio Gas Co., a Doherty company.

The directors include the officers named above and J. C. Dillon of Dillon

(Continued on page 61)

(Continued from page 58)

& McFrederick Brothers and John McCoy, of the Ohio Fuel Gas Co.

In addition to making and repairing drilling and fishing tools, repair work of all kinds is done. Of particular interest is the way in which priority on work is determined. Fishing jobs are given priority over everything else. When a man is in a fishing job he wants whatever he is after not a minute later than it can be obtained and his client is usually of the same mind. Therefore, if the Wooster Tool & Supply Co. should be busily engaged in some other work and a stockholder should enter with the doleful tidings that when he pulled out half of the jars and the bit stayed at the bottom, as many shop men as are needed and as much shop equipment as is required are put to work making or changing the particular tool he has in mind.

During the morning that the writer was engaged in gossip and the smoking of Pedestrain's Delight cigarets with General Manager Peterson, three stockholders of the company or their nominees entered and all of them had developed fishing jobs. The order of precedence in this case and always is first come, first served.

In arriving at its shop prices, the company took the prices charged by two other principal shops in Central Ohio and averaged them. The result was the price it established on its work. Thus, its operations were put on a competitive basis.

Besides its straight shop work, the company acts as distributor for several manufacturers. These include drilling and fishing tools made by two companies, wire lines, gas engines for drilling and lease operation, cordage and steel derricks. Rental service on fishing tools is maintained.

The shop is electric powered and the equipment includes one hammer, three lathes, shaper and drill presses. Another hammer is being added.

Besides the manager, the shop employs seven men and there has been plenty of work since it started to keep all hands busy. Care has been exercised to employ only skilled and careful workmen and the service has been up to the standard desired by the stockholders.

The shop is located near the B. & O. tracks and a switch gives the company unloading facilities right in the shop yards. Some time ago, Klise, Eckstein & McCann purchased 25 acres in a long strip near the railroad and a number of the companies have leased sites for warehouses and pipe yards from that company. The Wooster Tool & Supply Co. is located on one plot and is therefore, near to the yards of several of the stockholders.

YORK, PA.—The York Lubricating Oil & Grease Co. recently moved into its new warehouse and has added another truck to its equipment, reports Pius Lehman, proprietor.

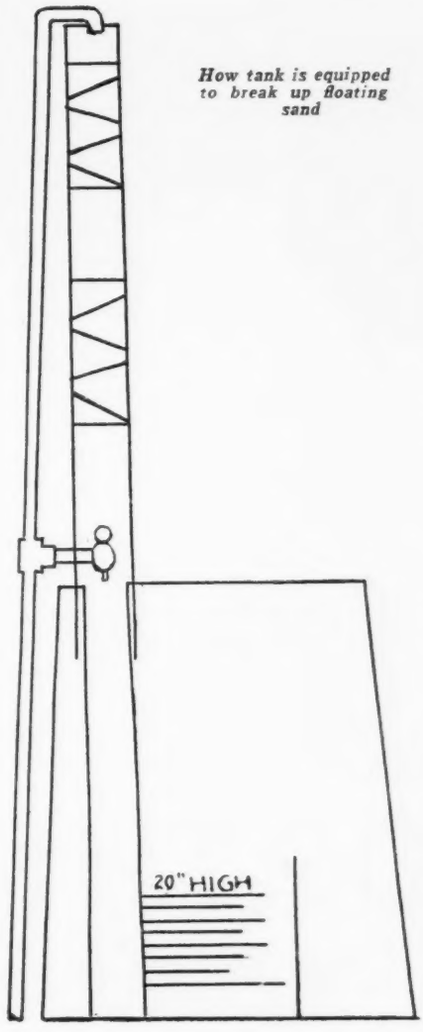
Kentucky Operator Saves Oil By Breaking Up Sand

IRVINE, KY., June 20

AN ingenious and effective means of breaking up floating sand and saving an important quantity of oil that otherwise would be drawn off as B. S. has been worked out by E. D. Watkins, of the Waco Oil Co. and part owner of the Allo and Adma companies, operating in the Irvine district.

In the receiving tank, which is about 60 barrels capacity, there is built a column not less than 10 feet high and 12 inches square. Screens are placed in this, at the top four made of one-fourth inch hardware cloth. A door in the column permits removal of the screens for cleaning. In the lower part are placed four screens of three-sixteenth inch hardware cloth.

A tight division board is placed in the tank about 27 inches high. In the column not more than 20 inches high holes are bored and three-fourths inch pipe is screwed. The oil coming in through the column passes through the screens, which breaks up the B. S. and floating sand, the latter a troublesome factor in this district. Through the pipes in the column the water is spread out and the oil is washed as it rises. The water settles in the compartment and the oil rises above the division board. Water is drawn off through two outlets in the compartment.



How tank is equipped to break up floating sand

On the Waco Oil Co. lease the daily production is about 40 barrels. With this device, about five barrels of marketable oil is saved daily.

Besides the saving in merchantable oil, another saving is affected. Before the device was installed the company found it necessary to clean tanks almost every time they were run into pipe line. After it was installed, the company went along for 20 months without cleaning the tanks so equipped and gave the pipe line a better grade of oil than they had up to the time of making the change. At the end of 20 months the company found it necessary to reset tanks. In doing this, the bottom of one 250-barrel tank was pumped into another of the same size and when this second tank was run it showed but seven inches of water and B. S.

Mr. Watkins is applying for patent on the method.

Duggan Oil Co. Re-organizes

DENVER, COLO.—George A. Duggan Oil Co. has recently been re-organized and is now operating under the name of The Shield Oil Co. George A. Duggan is president; Carl L. Modesitt, vice president; H. L. Ward, secretary; Floyd R. Pool, treasurer, and W. Q. Howell, sales manager.

Mr. Modesitt is an operator in Oklahoma, and Mr. Howell was formerly in the sales department of The Texas Co. at Denver, according to Mr. Pool.

NEW YORK, June 18.—After extensive experimental work the Hollow Ball Co., Inc., of Baltimore, have perfected a steel ball which will withstand pressure of 1000 pounds per square inch. This is a hollow ball particularly adapted for use in hot oil pumps where plugged, cast balls have been used. Some considerable trouble has been experienced with core holes, the tapped plugs working loose and causing leakage. This new hollow ball is said to overcome the difficulty and has been perfected after considerable research work.

COFFEYVILLE, KAN.—D. R. Brown, district manager of the Continental Supply Co., Kansas district, with headquarters at Coffeyville, is spending a three-weeks' vacation in California.

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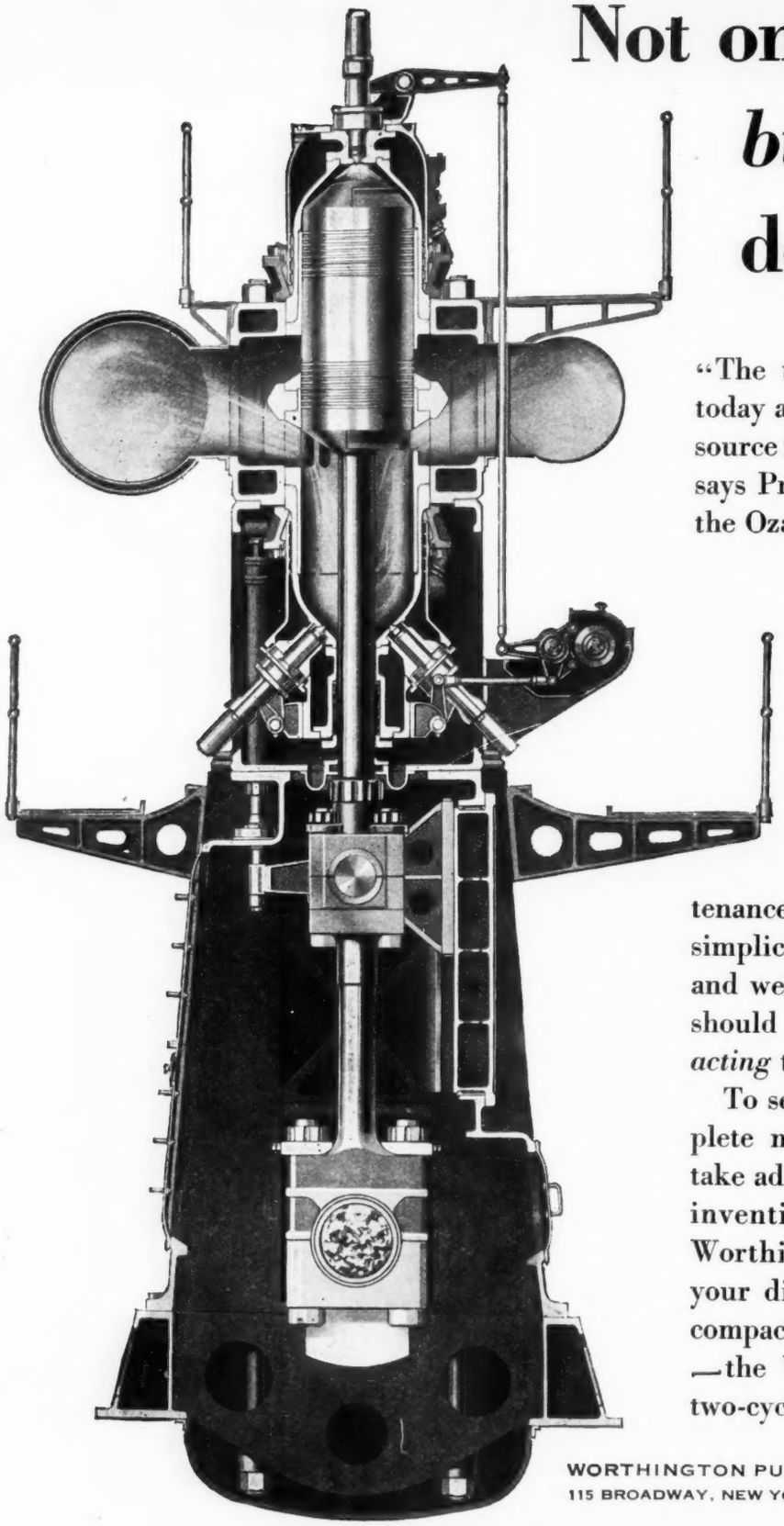

Not only two-cycle *but* double-acting

"The two-cycle Diesel engine of today appears to be the real power source for a small utility operator," says President George E. Silver of the Ozark Utilities Company.

AND not only for the small utility operator, but for anyone else who wants power in the most compact and efficient form possible today. But to secure the full benefits of fuel economy, maintenance and attendance economy, simplicity of operation and space and weight economy, your engine should be the two-cycle *double-acting* type.

To secure those benefits in complete measure, you have only to take advantage of the research and inventive genius whose results Worthington engineers place at your disposal in the world's most compact fuel-actuated prime-mover —the Worthington double-acting two-cycle oil engine.

WORTHINGTON PUMP AND MACHINERY CORPORATION
115 BROADWAY, NEW YORK CITY BRANCH OFFICES IN 24 CITIES

WORTHINGTON

Would Install Diesel Engines to Save Plant Residue Gas for Producers

By Paul Truesdell

N. P. N. STAFF WRITER

CLEVELAND, June 20

FOR years, up to a few weeks ago, the company that looked to the manufacture and sale of natural gasoline as its principal source of revenue has been forced to use every scrap of ingenuity that could be mustered in its operations in order to make a satisfactory profit. And this ingenuity had to be exercised along three principal lines;

1. The correct appraisal of the probable gas production over a term of years in the field where plants are to be located.

2. Chemical and mechanical engineering skill in design, constructing and operating of the plants to reduce operating costs and losses to the minimum.

3. Merchandising skill in selling the product at a price to yield a profit.

The unprecedented demand upon the refiners for gasoline during the past month or so has placed the natural gasoline industry for the first time in a good while, in a comfortable position. The heavy demand for gasoline has led to a large increase in cracking operations and it is well known that a great deal of the gasoline made by various cracking processes requires the addition of natural gasoline to make it a motor fuel that meets the requirements of the market.

Serious Problems

This condition, however, does not remedy the difficulties which many natural gasoline manufacturers are facing in the development of their industry. One of the principal problems of the natural gasoline industry, which is growing in seriousness especially in fields where the gas production is steadily decreasing, is that of being able to deliver back to the operators of the leases from which their supply of gas comes, enough residue or stripped gas to furnish power for the operation of the leases.

Another problem from the natural gasoline manufacturer's point of view, is that of getting down his manufacturing costs to the point where, considering the price of naphtha for blending, he can produce a blended fuel which he can sell at a profit in competition with straight run refinery gasoline.

A great many natural gasoline plant operators would undoubtedly regard as ideal a situation in which they could fill their absorber towers with naphtha and run the contents direct to storage or into tank cars for shipment after sweetening, when a sufficient amount of gas had been charged through them to give the proper gravity and distillation characteristics to the naphtha. But enough naphtha is not usually available for this purpose at a price which would yield the natural gasoline plant operator a profit.

So they are forced to use the mineral seal or the charcoal absorption methods, both of which are efficient but both of which entail considerable expense in reclaiming the gasoline by distillation in the one case and by steaming in the other.

Refinery-Gasoline Plant Hook-Up

It is the difficulty, at times, of getting the proper blending material at a price to their liking that has led several companies to hook up their gasoline plants with refineries. A refinery and a gasoline plant can be run together to very good advantage, their operating schedules being made so to speak to mesh into each other.

Probably the tendency toward linking up refineries and casinghead plants will be more pronounced in the future, many natural gasoline men believe. However, the operating men of the industry are advancing rapidly in efficiency and in cutting operating costs. One of the greatest gains in operating efficiency that is being made is in the development of "stabilizing" methods of various sorts, which reduces the operator's weathering losses and makes a more satisfactory fuel by eliminating the wild gases that sometimes remain in unstabilized gasoline as bubbles which escapes in the carburetor of the automobile and make for spitting and jerky operation.

And some of the manufacturers have practically or entirely solved their problem of making a profit by putting up filling stations of their own where they sell their product direct to the motorist, thereby earning for themselves a retail as well as a wholesale profit. This plan is working successfully for several companies in western Pennsylvania and perhaps elsewhere.

But of all the problems that beset the industry, most natural gasoline men believe that that of furnishing sufficient residue gas for the operation of the leases is the most serious because that directly affects the source of supply of their raw material. Unless the producer is assured of enough gas to carry on operations on his leases, pumping, drilling where the leases are not entirely drilled up, cleaning out wells and so on, he is unwilling to sell his gas to the casinghead plant at all, preferring to make sure that he has enough for his needs by keeping it all.

Shipping Fuel Oil to Lease

There are some gasoline manufacturers who have contracted with the producer to furnish him sufficient fuel in the form of stripped gas, who have found this impossible and who are fulfilling their contracts by supplying him with fuel oil which they have to buy in the open market and transport to his lease. This is an expensive proposition, but it is often necessary in order to get the gas.

Further improvements can and will be made undoubtedly both in the operating and merchandising ends of the industry but, natural gasoline men ask: What will these avail if it is impossible to get a sufficient supply of raw material? And they believe that any extension of the business if not even keeping it to its present level, will be difficult unless some way is found to make available more of the stripped gas for the producers' use.

One of the companies that is confronted, in its efforts to enlarge its operations, by the unwillingness of the producer to sell his gas and perhaps not get enough of it back, is the Bradford Gasoline Company, Bradford, Penna.

In general, the manner in which this company started in the natural gasoline business in 1913 and the problem that confronts it now, are typical of most of the natural gasoline operators, in the Pennsylvania districts at least. In 1913, most of the Pennsylvania oil producers, according to B. B. Stroud, secretary of the Bradford Gasoline Co., were operating their properties by steam, using na-

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No Cause For Worry, Listener Finds

E. W. MARLAND, head of the oil companies that bear his name and Mid-Continent chairman of the American Petroleum Institute committee on future supply of petroleum, tells a story appropriate to the present conservation movement.

According to Mr. Marland, a slightly deaf gentleman was sitting in a Pullman car behind a group of super-scientists. The latter were discussing the end of time and had reached the conclusion that it would be eight million years in the future.

Overhearing their remarks but not understanding them clearly, the s. d. g. excitedly broke into their conversation. At his request, they kindly repeated their conclusions.

"Oh," the s. d. g. exclaimed with a sigh of relief, "I thought you said three million years."

tural gas for fuel. And they would not sell their gas to the gasoline plant unless the company wishing to buy it furnished them with some other source of power to pump their wells.

In order to do this, the Bradford Gasoline Co. supplied them with compressed air. It put in a 21½ by 36 twin tandem double acting C & G Cooper gas engine, direct connected to an Ingersoll-Rand 40 by 36 low stage cylinder and a 26 by 36 high stage cylinder and two 19 by 24 single tandem C & G Cooper gas engines direct connected to 26 by 17 by 24 straight line Ingersoll-Rand compressor. These three engines are capable of 1600 horsepower and they are running about 10 hours each day. These were to compress the air to furnish the power for pumping some 3000 wells.

But conditions have changed from that time, says Mr. Stroud. With the discovery of the possibility of greatly increasing the yield of oil from wells through letting water on the sand which practice began generally in 1915 and with oil bringing higher prices than it was in 1913, Mr. Stroud says the producer's desire now is not to make a profit from the sale of his gas, as was formerly the case, but to be assured of enough gas to operate his property by means of gas engines and steam boilers where drilling operations are a factor.

Here is the way Mr. Stroud proposes to enable the plant to meet the demand for residue gas made upon it by the producers for the operation of their leases:

"The necessity for return of gas to the field, both for lease purposes and for domestic consumption has been the heavy burden we have had to bear and it has been obvious for some years that we would have to abandon the use of compressed air for pumping and utilize some other motive power for compressing gas at our compression plant."

Would Abandon High Stage

The company's plant which is located at Coleville, Penna., by the way, is a compression plant entirely, having low stage and high stage equipment. Mr. Stroud believes that it would be best to eliminate the high compression stage of the plant entirely and put in either oil or a charcoal absorption equipment, developing the necessary power for bringing the gas to the plant and returning the stripped gas to the field by the use of oil engines.

The tentative plan he is working on is to substitute for two of the four gas engines in present use at the plant, oil engines and change the high pressure cylinders on the compressors to low pressure cylinders and make the machine duplex, taking the gas at from 15 to 18 inches of vacuum and compressing it to 30 pounds. If this plan is carried out, he would do away entirely with the high pressure cylinders and substitute for them either a charcoal or oil absorber. The use of compressed air for operating the "air head" pumping equipment would be eliminated entirely, the producers putting in their own shackle line powers.

It is estimated that the cost of the change, figuring the two Diesel engines necessary to do the work, would not run above $20,000 and a charcoal or oil installation sufficient to take care of the company's gas would not exceed $30,000.

Plant Sometimes Lacks Gas

Like a great many other natural gasoline plants all over the country, the Bradford company's plant has been forced a good many times during the past two or three years to run at considerably below capacity on account of a short gas supply. This was not because of decrease in the volume of the gas coming from the leases with which its lines were connected but due to the fact that the demands of the plant equipment made it impossible for the plant to return to the field enough residue gas to operate the leases. Under these conditions the producers refused to turn the gas into the lines, preferring to keep it for their own purposes. The company a couple of years ago put in a Cruse-Kempler gas holder, with 200,000 cubic foot capacity to equalize the gas supply, storing it when the demand from the leases was below the current output of stripped gas and furnishing more gas when the current output from the plant operations was below the field demand. While this gas holder helped some, of course, it does not increase the sum total of the stripped gas supply.

The plant the company is considering contemplates keeping two of the gas engines now in use as standbys. When the demand from the field permitted it, the gas engines might be used to drive the compressors, in the summer, particularly when heating demands would be low, and when the demand for the gas was too heavy, the oil engines could be cut in. Excess gas, when available would be used as the fuel for the absorption system and when it was not available, coal would be used for this purpose.

Mr. Stroud figures that the installation of Diesel engines would make it possible to return to the leases about 200,000 cubic feet of stripped gas per day which is now demanded by the plant's gas engines. Also, by the elimination of the air plant, the operating expense would be considerably reduced. The plant could operate with fewer men and instead of repairs and maintenance on some 2050 horsepower of equipment, there would be only the maintenance on the two Diesel engines.

Although keeping two of the gas engines in the plant, Mr. Stroud doubts whether it would ever be desirable to use them, for oil engines are more economical when gas is readily salable at around 50 cents a 1000 feet as is the case in that locality. This plan that has been tentatively worked out suggests the question, is it possible to remedy the problem of furnishing sufficient residue gas to the leases, in part at least, by the adoption of oil engines at natural gasoline plants generally to replace the gas engines that demand so much of the residue gas as fuel?

It is pointed out that the Bradford Gasoline Co. is particularly favorably situated for such a method of operating where many other plants are not. This is due to the connection of the plant with the McKean County Refining Co.'s refinery at Farmers Valley, some five miles from Coleville. As was related in a story on the McKean county plant, published on page 179 of the May 13th issue of N. P. N. there is now a two-inch pipe line connecting the refinery with the natural gasoline plant.

If the plan under consideration by Mr. Stroud and the other officers of the company is put in effect, the line will be used for transporting fuel oil for the Diesel engines as well as the blending naphtha, from the refinery to the casing-head plant. The Pennsylvania fuel oil, which is really a high grade gas oil, makes ideal fuel for a Diesel engine.

At a plant where the fuel for the Diesel engine would have to be transported by rail or a special expensive pipe line would have to be laid to bring the fuel to the gasoline plant it is a question whether or not the substitution of Diesel or semi-Diesel engines for the present gas engine equipment would be profitable. However, wherever a refinery is closely hooked up with a natural gasoline plant, so that the two plants could be operated with regard for each other's needs and transportation could be effected at low cost by pipe line, it would seem that the idea is worth considering by natural gasoline manufacturers who also are troubled by inability to supply producers with the contracted amount of stripped gas.

A good many natural gasoline plant operators have also motorized their plants where they are conveniently located with regard to transmission lines and it is possible this tendency will be increased as a means of releasing more stripped gas to the leases.

FORT WORTH.—The Corsicana-Mexia district of the oil and gas division of the Texas State Railroad Commission has been divided under orders issued as Austin. Acting Chairman C. S. Terrell, of the oil and gas division announces that Supervisor Laughter will remain at Mexia and that F. H. Pierson, deputy supervisor, will be in charge at Corsicana.

DALLAS.—Sun Oil Co. is moving in materials for a third zone test in the Smackover, Ark., field, one-eighth of a mile north of the Texas Pacific Coal & Oil Co.'s No. 5 Laney, which is making about 40 barrels an hour at a level just above 2600 feet. The Sun test is

$1,500,000.00

J. A. Hull Company

10% Cumulative Preferred Stock

Preferred both as to dividends and as to assets. Dividends payable quarterly, on the first day of January, April, July and October. Price $100 (par) per share to yield 10%, and retirable on any dividend paying date after January 1, 1927, at a price of $115 a share.

The only stock outstanding besides this issue is $500,000 of common stock, the assets of the company being close to $4,000,000 as against the present total authorized capitalization of $2,000,000.

The company is a producer of crude petroleum and manufacturer of natural gasoline. Its present production of crude petroleum in Oklahoma and Kansas is approximately 2,000 barrels a day net of high gravity oil.

Net earnings at present are running approximately $100,000 a month, or more than eight times the dividend requirements on the $1,500,000 issue of preferred stock.

The high annual dividend yield of 10% is made possible by the fact that the shares are being sold directly by the company, without the payment of a commission of 15% to 25% to an underwriting syndicate. The purchaser receives the benefit of the saving in commissions.

Officers of the company are: President, J. Arthur Hull, vice president of the Bessemer Gas Engine company and bank director; Vice president, Ralph C. Riley; Secretary, O. J. McCann, and Treasurer, P. F. Cole.

Careful inquiry into the merit of this issue is solicited.

For descriptive circular address the

J. A. HULL COMPANY

1005-13 Kennedy Bldg. Tulsa, Oklahoma

From Banker to Expert on Fishing Job Is Role of the Supply House

By Howard Markt

N. P. N STAFF WRITER

THE established oil field equipment supply companies are a great stabilizing force in the oil producing industry. They have had more of a part in making possible the great increase in crude oil production the world has demanded during the last decade than is generally recognized.

The efficiency of organization within the supply companies has brought a considerable degree of orderliness to the exploitation and development of new oil fields—where the outsider sees only turmoil and excitement in the scramble to get wells down to the sand. This organization of the supply industry has undoubtedly had its effect on the price of crude to the public at times—even in the price the public has paid for its gasoline.

The supply company has gone to extreme lengths to have material available in ample supply in the boom days of new fields—as the following article shows. With its supply stores already established in old fields and material constantly moving from factories to those stores, it has been possible to divert shipments to new territories and have the stuff on the ground almost as soon as operators were ready to start their wells. In the company's factories stocks are also constantly carried against just such contingencies as the rush accompanying the bringing in of new fields.

The established companies also have consistently followed the practice of holding to normal price schedules during such boom periods and have fought the efforts of fly-by-night companies, which secure pipe and other materials from outside sources, to double or triple normal prices for equipment because of the great demand from operators and drilling contractors. They have made it possible for those operators to lay out their development programs knowing what their material was going to cost them.

Going outside what might be considered a necessary service to the oil producing industry, the supply companies have acted as the industry's bankers time and time again. They have extended credit in the form of material, to operators to carry out development programs. They have carried individual operators over lean periods of low priced crude, when other creditors—even the grocer and meat men—were calling for their money. To the credit of the industry be it said that the percentage of bad debts the supply houses carry is lower than for most lines of business.

Other services the supply houses have performed for the oil industry also. Their engineering forces are constantly developing and testing new devices and equipment to make the business of drilling wells more efficient. They have saved the oil producing companies time and money through the work that goes on in their laboratories and engineering departments.

They have had a great part in the standardization of oil field equipment program the American Petroleum Institute took over some three years ago. This joint effort of the oil field operators and the supply and equipment companies is one of the finest examples of well directed co-operation the oil industry has ever experienced.

The accompanying article has been prepared to show the industry as a whole how the supply company fits into the oil business—what a vital part it plays. While the work of certain supply companies is described to give the picture detail, it is nevertheless true for each established supply house and for the equipment branch of the industry as a whole.

Engineering Force Protects Field Operators

TO develop new equipment or improve old equipment, the National Supply Co. maintains a corps of engineers under the direction of M. T. Archer, chief engineer. This engineering department is one of the most valuable units of the organization, for it assimilates new ideas for improved equipment and tests them, so that, when a new product is put on the market, the company knows positively that all imperfections have been taken out

It is the attention to small details that makes for the success of a supply company in that it retains a customer's good will and his business. So often a comparatively small detail rankles the customer something that could easily be eliminated. Again, it may only be a little unusual service or some slight help, or some added facility that keeps these old customers, in addition to the general quality of the equipment.

Illustrating this is the instance of a teamster in the Mexia field, who persistently called at the National Supply Co.'s store. He was such a frequent caller for practically everything the contractors wanted that finally inquiry was made as to why he always favored the National. He replied that it was because the warehouse always loaded the equipment for him. Truly a small matter, but of value in respect to the amount of business that the company won through the friendship of this man.

Every National store is equipped with loading facilties including a crane that travels the entire length of the warehouse. This not only expedites handling equipment by the men in the store but also a service that customers appreciate.

Out in Casper an order came to the National stores for a boiler. The teamster had scarcely laid down the order before the boiler was loaded. As a matter of fact it required just 30 minutes and the teamster was on his way. The speed in handling orders is of material benefit to customers at all times.

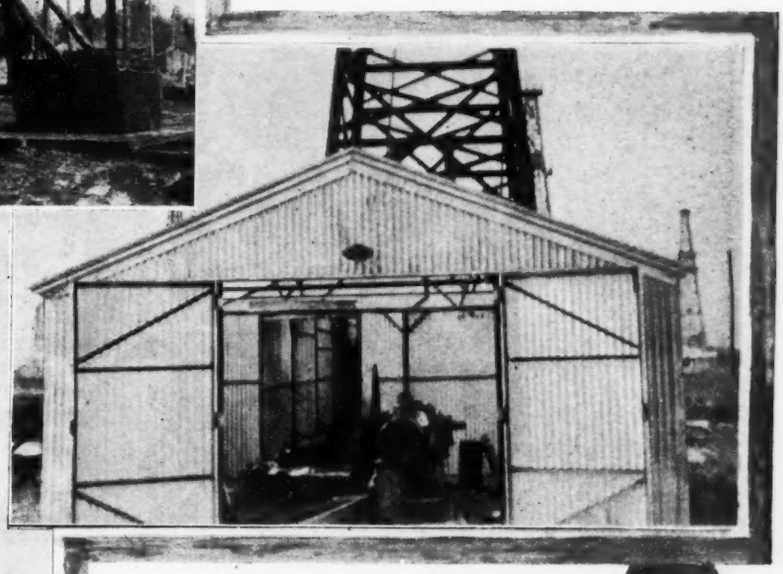
National stores and warehouses are of standardized steel construction and any number of bays can be added if necessary. In the Corsicana field, for example, the equipment arrived before the warehouse. It was necessary for the National to put in the foundation and then unload five carloads of equipment on it, erecting the building over it later. The important point was to get the equipment there, and the company did the most important things first.

Another example of quick service was in the Mexia field. Wiped out of stocks almost overnight, the National dispatched a carload of pumps to its Mexia warehouse. It required just three days for this carload to arrive in Mexia from

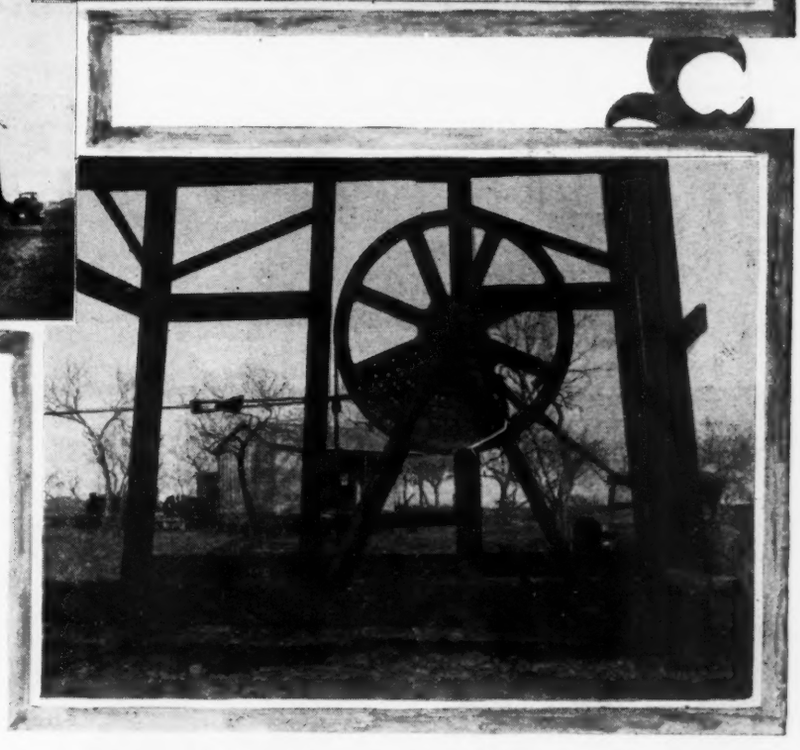
EFFICIENCY ON THE LEASE

Left—Well of Rio Bravo Oil Co., Saratoga field, Tex., pumping without rods. Tubing is fitted with valve at bottom and moves up and down. Flexible hose connection is thus required for discharge of oil.

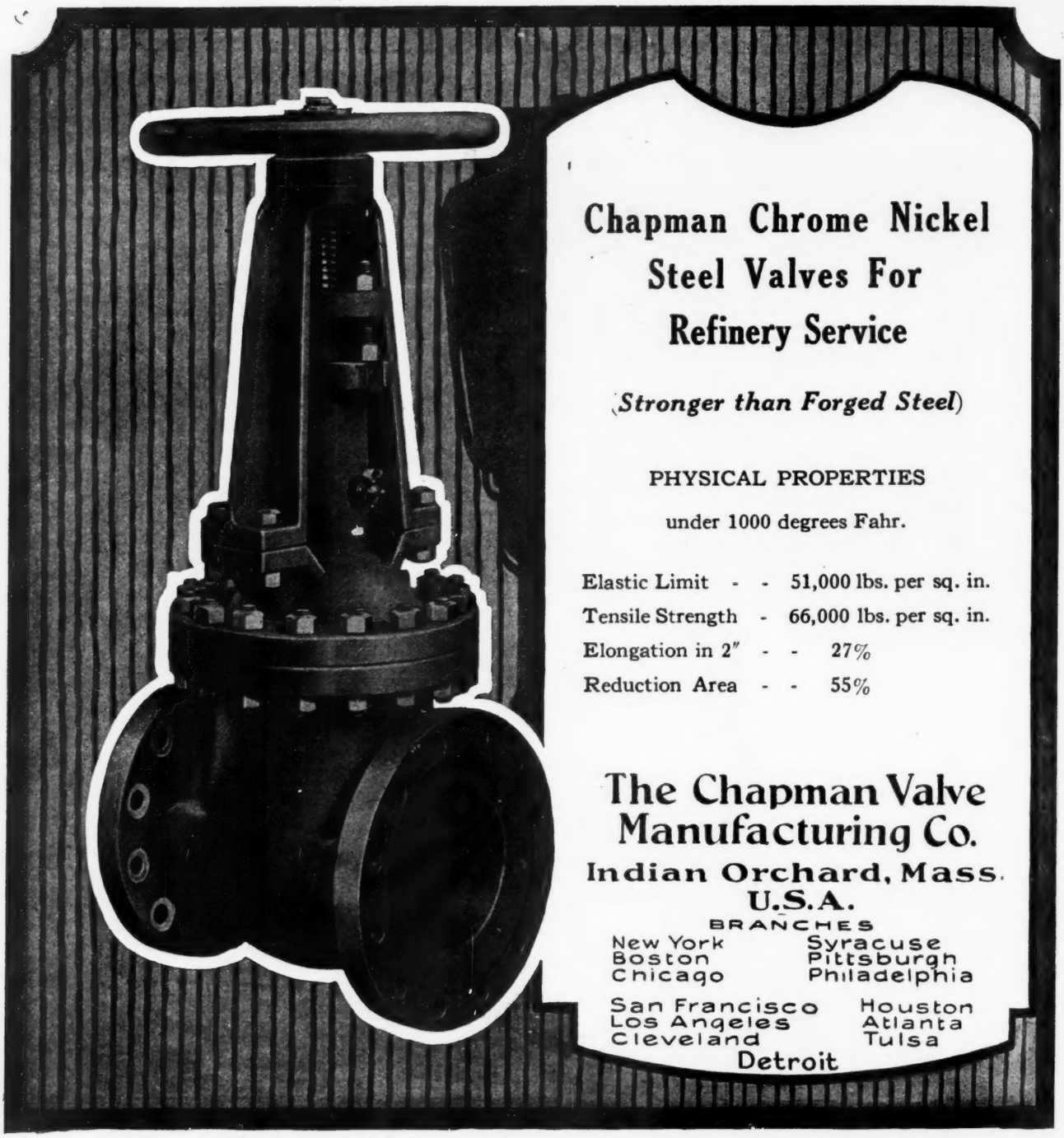
Below—All steel construction in the oil country minimizes fire risks and makes for efficiency, especially when engine and belt house can be knocked down and transferred as required. This is on Crouch lease of Humble Oil & Refining Co., Wortham, Texas, field.



Above—There are several methods of skidding derrick. The Western Petroleum Exploration, operating in the Sunburst field of northern Montana, is here moving one with caterpillar tractor as the motive power. The company says it is a rapid and certain way of doing it.



Above—New Frick-Reid long stroke pump jack in use in Luling field, Texas. Variations of stroke and speed of motion are regulated by using different holes for rod lines, as shown. Supports are of 4-inch pipe and center of wheel is about six feet above derrick floor.



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(Stronger than Forged Steel)

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Tensile Strength -	66,000 lbs. per sq. in.
Elongation in 2″ - -	27%
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Indian Orchard, Mass. U.S.A.

BRANCHES

New York, Boston, Chicago, Syracuse, Pittsburgh, Philadelphia, San Francisco, Los Angeles, Cleveland, Houston, Atlanta, Tulsa, Detroit

CHAPMAN VALVES

(Continued from page 66)

Toledo, comparing favorably with any express or mail train schedule.

The storekeeper in a new field has a man size job. He is kept going practically day and night taking care of his customers. In one of the National stores, the storekeeper received a call for a big gate valve in the middle of the night. Notwithstanding the time, the storekeeper arranged for the delivery of the valve himself and returned from the nocturnal trip at 3 a. m.

Another customer besought the storekeeper one night for a small repair part. The request for this repair part was so unusual the storekeeper was caught unprepared to hand the man the part and go back to bed. The wits of the storekeeper came to the rescue. He thought of a complete unit in stock. He and assistants tore down this unit, removed the necessary part and handed it to the customer.

The National Supply Co. maintains six manufacturing plants to feed the district warehouses and stores. These plants run winter and summer, through good times and bad. When the supply business is not up to normal, these plants keep running piling up stocks. The minute a new field is opened, the stocks are wiped out almost overnight. Piling up this big surplus of materials and providing for these emergencies is expensive work, but it is only another phase of the service that a supply company is required to provide for its customers. Through some 100 stores these supplies eventually reach the oil producer and the drilling contractor.

Oil operators look to supply companies for an adequate supply of material for drilling or pumping at all times. Many of them are getting away from keeping their own warehouses, as this is a costly proposition for the most part. The supply company is today of growing importance to the oil industry both domestic or international. For example the National keeps salesmen in Rumania, Poland and South America.

The plan of making direct shipments from the manufacturer of individual oil field equipment is passing with the oil company warehouse. Many field men object to their companies making direct purchases from the manufacturer, because of the longer and uncertain deliveries.

The supply companies are great stabilizing effect in that they set certain prices and adhere to them consistently. The National Supply Co. prices are uniform no matter what National store may be asked for quotations. Except for the freight rate differential, it is impossible to buy a single product in any National store cheaper than it can be bought direct from Toledo.

No advantage is taken of any emergency that may arise. A boom field, isolated though it may be, does not prompt the National Supply to raise its prices in that district because material may be hard to get. This is great protection to the buyer. This company stocks material at the quoted price—the billing price. There is no one in authority to make a special price on any item of equipment.

Some oil companies do considerable experimenting with new specialties and this practice is generally costly because they are often in an untried state and the cost of the testing is borne by the operating company. The National, through its engineering organization, passes on these specialties long before they reach the consumer's hands and they are not marketed until they are entirely out of the experimental stages.

Although the larger supply companies maintain strict codes of business ethics, here and there one will find some of the very small companies engaging in some rather questionable business practices, such as price cutting, offering free deliveries to the field and so on. The established supply companies meet this competition only by maintaining uniform service and uniform prices.

Along with its policy of fairness to all customers the National Supply takes great interest in its employes. Its Toledo factory maintains an elaborate club house and restaurant for all employes. Several hundred take their noonday meal there and the club is always available for dances or for any other form of diversion.

The convenience and comfort of its salesmen out on the road has not been overlooked. The company recently delivered to its salesmen specially built coupes of Willys-Knight design, painted in the characteristic National colors.

Have Helped Many Oil Men to Success

THE average oil well supply company is truly a phenomenal business institution in the diversity and various ramifications of service it is continually rendering its customers. A good deal of the oil development has been fostered and made possible by the help rendered by these organizations unique to industry generally.

Many an oil man owes his success to the helpful guidance of a supply company. Supply companies are continually being called upon to act as oil country bankers, and, according to Clark Reed, vice-president of the Oil Well Supply Co., Pittsburgh, frequently they are called upon to carry on their books, in open accounts, a total of more than their entire capital stock. Through good times and poor, this company continues in the role of an oil country banker—a service which is of incalculable benefit to the oil producer and contractor.

Strictly speaking, the banking role should not be included in the supply company's reportoire. But the oil business is unlike any other. Development is sometimes far from established cities and the men who carry on the development sometimes come from hundreds or thousands of miles away. They are unknown in the locality except to the supply company. It is necessary for these men to have a certain amount of working capital, but obviously in the drilling of a well, it would be impossible for many of them to finance the entire project themselves. Here is where the supply company gives its assistance in the way of credit for needed materials and supplies.

Help Men To Success

The supply companies are continually developing new accounts and helping deserving men to success. If a driller comes into a new territory with $2,000 or so in his pocket and sees a chance to make good as a contractor, if his past record warrants, he is supplied with the necessary credit for boiler, equipment and tools.

Many men now prominent in the oil business owe their start to the financial help given them by the supply company. In after years their gratitude has been shown by their placing virtually all their business through their first benefactor. One man, now the president of a large producing company, always places at least half of any equipment requirements through the Oil Well Supply Co., because of the help this company gave him early in the game. Another man, whose early endeavors met with such ill fortune that banks refused to advance him money, found this supply company an indulgent and faithful friend, who carried his accounts until fortune smiled and was then repaid for every cent of its investment.

Step into any group of oil men. Rub shoulders with them at any convention and you will be struck with their friendliness and good nature and honesty. In no other industry has greater due been given a man's word or his willingness to succeed as against the actual cash in his pocket. And nowhere have fewer evidences of default been shown.

Everyone knows the supply company performs some unusual service stunts; in fact oil men expect the unusual of the supply company. Clark Reed relates a rather interesting example of real service and the recompense that followed:

Design Fishing Tool

One of the larger operating companies in Mexico lost its tools in a hole and the fishing job was such that no ordinary fishing tools would do the job. The local manager of the Oil Well Supply Co. went over to the job, looked

Sand Trap is Required for Gulf Coast Field

Rio Bravo Oil Co. "Sand-box" in use on Jourdit lease, Saratoga field, Texas. By use of an inclined trough, with baffles extending nearly to bottom, oil is skimmed from a mixture of water and sand and is saved, while the heavy stuff drops below. The box is elevated some distance above the ground.

it over and designed a special tool that recovered the tools and saved the hole from being scrapped. The tools cost only $250, but the oil company was so pleased with the results that it offered to pay $2,000 for the work. Finally they were won over to the Oil Well's way of thinking—that service was their business and that $250 represented a fair price for the work. The $250 fishing tool saved them from possibly scrapping a $100,000 well.

An organization such as the Oil Well Supply Co. operates 20 field shops scattered throughout the United States and foreign countries. A few of these shops are termed "small" by the company and represent an investment of $20,000 each. In cable tool country many large shops must be maintained. The investment in such a "large" shop is roundly $200,000. Oil Well has about $2,000,000 invested in such shops, where special equipment is made and repair work carried on.

Someone facetiously dubbed the supply store manager a country doctor. He is the community's trouble man. From the range of duties that fall within his province one may well expect him to be called into consultation on baby's latest development—the croup—rushing tons of equipment out to a location 20 or 30 miles from the store. He is ever at the call of his customers. Everyone knows him by his first name, everyone knows his telephone number and his home telephone number, as well. He is always recognized as one of the best businessmen of the community.

The Oil Well Supply Co. operates 84 stores, throughout the United States and foreign countries. London and Tampico are among the more important foreign stores.

Operating a supply store is a picturesque and interesting job. A good store manager is a jewel and, as flush production comes and wanes, and pumping wells taper off from good wells to unprofitable ones, a supply company recognizes the changes in the district and either transfers its store manager or perhaps retires him on pension after long service. Several store managers of the Oil Well Supply Co. have been with them for a half a century. Charles Craig who was in charge of the Bolivar, N. Y., store, retained that position until the time of his death, last year. Charles Bailey, the oldest manager in the eastern district, for 40 years has been in charge of the Sisterville, West Va., store.

Heavy Investment

An active store requires an investment of from $100,000 to $300,000 to adequately take care of its customers. Acting as a feeder to these stores are the district warehouses. Such a district warehouse—of which the Oil Wells has six—represents an investment of close to a million dollars. They carry a stock of from 6000 to 10,000 parts of various descriptions.

Still farther back from the firing line are the supply company's factories, of which the Oil Well has nine. Thousands of articles are manufactured in these big factories. The Imperial Works, at Oil City, covers 52 acres and manufactures 3000 separate articles. Whole trainloads of supplies are moved out from this plant at a time.

Installing stores is a problem requiring care and thought. The big investment required means the supply company must not rush hastily in with a store to supply every likely looking wildcat. The supply company does not employ geologists nor does it make an intensive study of outcrops and so on to judge likely new territory. Like the pipe line companies, which have an uncanny way of laying lines in strategic locations, its stores are placed only after mature thought by men who have developed something akin to a sixth sense. A new field always results in many supply salesmen being put into the field and at first shipments are handled direct from the district warehouse or nearby supply stores. If business warrants, a local supply store is put in.

Large oil companies show no disposition to go into the supply business; they even display less interest now in carrying large stocks of materials themselves. During the war, oil companies laid in big supplies of materials, principally pipe because of the difficulty of getting this material. With the armistice, they began to clear their warehouses of these surplus materials, in many cases selling them themselves. Close stock records kept by oil companies, have enabled them to transfer surplus materials from

one point to another and so kept down the investment in materials.

The carrying of large stocks by oil companies is an expensive proposition, not only due to the money tied up, but also, to the obsolescence of equipment. The oil industry is developing so rapidly in sound engineering lines that a few years make a tremendous change in equipment. Many of the larger oil companies are standardizing on equipment of one kind or another, to keep their investment in repair parts low. More and more the oil companies are content to let the supply companies carry the stocks and pay the supply companies their small profit in view of the service they give. There is practically no buying direct from manufacturers, except in the case of pipe.

One factor that affects supply companies is the making of repair parts, by small machine shops, for the standardized products of the supply companies. One of the bad features of this practice is that a poorly fitting part may have to be specially fitted on to the engine or whatever the equipment may be. When assembled and put into operation, if the part does not give satisfaction, it reflects on the efficiency or usefulness of the equipment.

A company such as the Oil Well Supply Co. so completely standardizes its parts that it is possible to build a complete unit from parts in stock. For example, in the Wichita Falls store, storemen built a complete mud-hog pump from the parts in stock. No hand fitting was necessary, in fact no hand fitting could have been done, for there were no tools available to perform the task. This interchangeability is somthing that makes for extreme economy and efficiency of operation.

The average term of office of the officers of the Oil Well Supply is 25 years. D. J. Brown, vice president and general manager has served 38 years; Louis Brown, president, 35 years; Mr. Burns treasurer, 37 years; H. A. Boschert, assistant treasurer, 33 years; Clark Reed, ten years and Mr. Fleming six years.

Take Chances With Producers in New Fields

MANY are the phases of service a supply company is called upon to render its customers. Behind the scenes there is a tremendous organization constantly at work improving this service, searching for new and better equipment and keeping itself in readiness for the unusual demand that the bringing in of a new field causes from time to time.

Such a supply house as the Continental Supply Co. is always on the lookout for new ideas. Each individual connected with it is keeping his eyes open for new ideas in operating equipment. Many of these ideas are gotten from other industries and are developed or their development aided by the Continental.

Then, of course, there are the 65 Continental stores. These are virtual clearing houses for information. Everyone who wants to know something calls at the supply stores for an answer, and wants it fast. The Continental store manager digs up the desired information if he is unable to give it offhand. This is of great benefit to the Continental's customers.

Much has been said of the average supply stores and the diversity of their tasks. Not the least of these is that of housing the workers in a new field, or the transients there on business. Nearly every supply store has some kind of accommodations for those who cannot get it at the hotels or boarding houses.

Oil companies recognize the value of such a service organization as the Continental Supply Co. Many of them have cut their warehouse stocks down to a very minimum in recognition of the service such an organization renders. Oil companies who have analyzed their costs have found that the cost of maintaining warehouses, clerical help to keep those warehouses running, taxes, losses in inventory, and loss due to the obsolescence of equipment, brings the cost of material up higher than as if that same equipment were bought direct from the supply company. A few of the oil companies have virtually discontinued carrying any supplies of their own.

Unusual Services

The supply company makes a business of supplying all the needs of the oil producer and the contractor and it is willing to do some rather unusual things to protect him. The Continental will tag and hold in its warehouses practically any amount of equipment adequate to cover the needs of an oil company or contractor. This service protects them against emergencies and losses due to delay in delivery. This service, all in return for a fair price for the equipment, with only a moderate profit to the supply company, affords a competitive cost to the oil company that it is very difficult for them to meet in respect to doing their own warehousing.

Some oil companies still practice the direct buying of equipment, but in many cases these same companies are frequently obliged to call upon supply companies in emergencies. No more striking evidence of the unusual service afforded by a supply company could be given. In boom times such service is vitally necessary. It shows that the supply company is as essential a part of the oil business as the oil producer or the contractor himself.

The supply business is keenly competitive. Prices are checked carefully to keep them in line with demand. Bootleggers, who blossom and wither periodically give no trouble to the legitimate supply company.

An interesting sidelight on the way that bootleggers operate is afforded by the following instance. A bootlegger called at the offices of the Continental Supply Co. in St. Louis during the war claiming to represent a customer of theirs and giving as the reason for his visit that he came to place a large order for pipe. Perhaps his story wasn't quite plausible, perhaps it was just plain good business acumen or instinct that prompted inquiry. At any rate this company found the caller was deceiving them—and he got no pipe.

The oil business is migratory and as a consequence the supply company is especially careful and expeditious in keeping a very accurate check on credits. A man who, for example, moves from Tulsa to Casper, finds there a Continental store which will supply him, providing of course that his record with the Tulsa office has been favorable. The supply company has unlimited faith in the bona fide oil man. They are invariably sure that if he lives he will pay out. They have no time for the oil stock promotor.

Credits are handled by each individual district, of which there are five, and each of these district credit offices report to the main office. Through this office the information is cleared. In this way any office has the complete information on any old customer, or if not, it can be secured in a very short time.

One of the banes of the supply business is the man who represents himself as connected with a supply company but carries no stock and does no servicing. He sells direct from the factory and caters only to the gilt-edge companies who pay promptly. Oil companies pay the same price they would pay the supply company and get service which is not at all comparable. It is not infrequent that delayed shipments, or an unusual demand for equipment, drives the oil company to the doors of the supply company in the end.

It's a herculean job, taking care of a new territory adequately. The Continental Company in the recent Wortham boom, immediately the field was established put into transit 100 cars of material. Ninety-three of these cars were sold in transit and only seven cars of material actually found their way into stock. Equipment kept going

Meeting every building requirement from Oil-field to Consumer

Blaw-Knox steel buildings are suitable for the following purposes:—

1—Derrick houses
2—Belt houses
3—Warehouses
4—Bunk houses
5—Engine houses
6—Bull-wheel sheds
7—Calf-wheel sheds
8—Pump houses
9—Boiler houses
10—Casing-head gasoline plants
11—Power houses
12—Offices
13—Garages
14—Filling stations

BLAW-KNOX steel buildings follow the pipe-line and tank-car, everywhere housing and safeguarding your equipment and product.

These buildings are adaptable to the changing conditions of producing, refining and marketing because they can be completely changed in size, shape and location as need arises. This great flexibility practically gives you liquid assets in your building investment. At the same time, the very low cost of Blaw-Knox buildings releases capital for other developments.

Blaw-Knox buildings come in any size or shape to your order, completely shop-fabricated and partly assembled for quick erection. They are made from *time-tested,* rust-protected metal—structural frame, galvanized sections, steel doors, windows and ventilators—and are non-combustible, weathertight and substantial.

Blaw-Knox buildings have been developed over a period of fifty years, and have an enviable record for enduring service. Their *time-tested* quality is found in no other steel building. Do not waste time and money in cheap, temporary structures.

Let us show you how to build permanently and economically the Blaw-Knox way. Send for catalogue fully describing all details.

Typical Oil Company Installations

Kentucky:—Indiana Refining Co., Bowling Green.
Indiana:—Hawkeye Oil Co., Warsaw; Moorehead Oil Co., Hammond.
North Carolina:—Standard Oil Co., Newbern, Salisbury, Hickory, Fayettville and Goldsboro; Texas Co., Raleigh, Reidsville, Wadesboro.

BLAW-KNOX COMPANY, Pittsburgh, Pa.
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District Sales Offices: BUFFALO, DETROIT, BALTIMORE, CHICAGO, CLEVELAND, O., NEW YORK, BIRMINGHAM, *9500 Quincy Ave.*, PHILADELPHIA. 231 No. 12th St.,

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out as fast as the field was ready to absorb it.

The supply company takes the same chance as the operator in the field and at the same time. If a new field is defined, it is necessary not only to have a good stock near at hand, but it is also necessary to keep additional stocks to replenish drafted stocks moving in at an unprecedented rate. In this particular case the Continental had a store at Mexia, just a few miles away, but nevertheless it required an intimate knowledge of local conditions and the probabilities of the tentative Wortham field to be able to meet the emergency when it arose.

The supply company is a big organization and operates smoothly due to its efficiency. The Continental has 65 stores and maintains branch warehouses at Coffeyville, Kan., Tulsa, Fort Worth and Houston. Large stores that function in the capacity of warehouses are located at Corsicana and Casper.

The country as a whole is divided into districts with a man in charge of each district. These in turn are divided into subdistricts. A district will have about 12 stores under its jurisdiction and a subdistrict will have from three to five stores. Besides there are offices in London and South America.

The supply company is always looking for new equipment that will do the work better. Many of the new labor-saving ideas originate in the field, or are evolved in the field. The development of these ideas is a joint proposition between the field men and the supply companies.

The principal idea here was not to avoid digging a cellar, but that result was obtained. This just happend to be the location and Schuster Brothers, in the Salt Creek field of Wyoming, went ahead and drilled it there.

The supply company is concerned with giving the oil producer or the contractor something better in the way of equipment all the time. The Continental Supply Co. works in conjunction with various companies whose product they handle exclusively or nearly so. Among some of the recent equipment that has been brought out by the Continental in conjunction with the manufacturer is the new chain driven sand reel, manufactured by the Oil Country Specialties Co. The expansible piston slush pump manufactured by the Gardner Governor Co. which compensates for wear is one of the biggest improvements in adding to slush pump life that has come out in some time. Another product brought out is the Burke long-stroke pumping device manufactured by the Oil Country Specialties Co. and the rotary releasing spear for pipe, manufactured by the Gray Tool Co. of Houston. The latter is almost human in its ability to be engaged or disengaged at any point.

This Supply House Will Furnish Drillers on Call

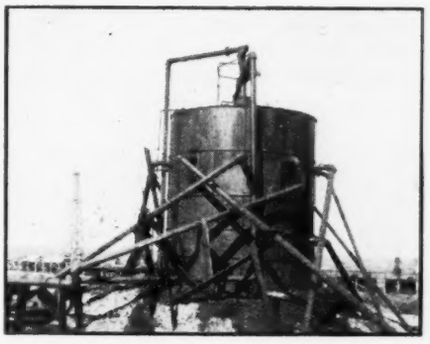
"INDUSTRIES generally cannot exist without fuel oil and oil can not be produced without equipment furnished by 'supply houses' having branch stores covering all principal oil fields," says John L. Shakely, general sales manager of the Frick Reid Supply Co., Tulsa.

Supply companies are so interwoven with the business of producing and drilling for oil that supply men are usually referred to as oil men. This supply business carried on as it is many times under tremendous handicaps, is such an integral part of the oil industry that oil men take this service for granted. Their job would be a huge one were there no supply companies and they had to provide for all equipment by direct orders and shipments from manufacturers. Some companies because of their size could anticipate their requirements and handle their own supplies fairly well, but at an extra cost but the small operator, the wildcatter—that valuable pioneer—would be seriously handicapped.

The Frick Reid Supply Co. through finely organized group of 36 stores in Oklahoma, Kansas, Texas, Arkansas. Wyoming and Louisiana keeps in close touch with oil producers and contractors. These stores are kept stocked up adequate for all needs of the immediate field by central warehouses, such as those located at Tulsa, Beaumont and Cisco, Texas.

This company handles the equipment manufactured by many of the oldest manufacturers of oil well drilling and pumping equipment in the United States. One of these is the National Transit Pump & Machine Co. of Oil City, Pa., which makes a line of steam and power pumps and general pipe line equipment. Frick Reid is exclusive agent in the Mid-Continent for the National Transit.

A whole lot of romance attaches to one of the products of Frick Reid. That is the Warren drilling engine. This engine, except for minor improvements by way of increased horsepower, has been built according to the same specifications for the past forty years. Here is an engine designed for reliability and simplicity that still gives a good account of itself, although drilling conditions have changed greatly during this period.



One of the famous tanks of the Tonkawa field. This is on the lease owned by T. B. Slick, where the deep sand discovery was made, and through this one flow tank there was handled for a time 12,000 to 13,000 barrels daily.

A rather unusual service offered by this supply company is that of supplying drillers who will go anywhere, to any part of the world for companies planning development work there.

Besides a line of tubular goods and drilling equipment, Frick Reid carries at various points a complete line of pumping equipment.

Baldwin Enters Employ of Marland Company

DENVER, June 20.—Harry L. Baldwin, jr., has started his work as geologist for the Marland Oil Co. of Colorado, in reconnaisance work in western Wyoming.

Mr. Baldwin's experience in the oil industry has been wide, although crowded into the space of a few years. After the "strike" of students at the Colorado School of Mines in 1918, Mr. Baldwin, then a member of the sophomore class spent a season with the Empire Gas & Fuel Co. in western Wyoming as instrument man. At the close of this assignment, he was recommended for similar work in Angola, southwest Africa on concessions later acquired by Sinclair interests. He returned to the United States after four years in Africa, two of which were on independent work and thereafter he alternated between school work and field work in Panama, re-survey of Teapot Dome and work in eastern Wyoming.

Acid in Soils Responsible for Pipe Protection

By Paul Wagner

N. P. N. STAFF WRITER

HOUSTON, June 20

THE question of protecting pipe lines against corrosive elements in the soil is a problem of varying angles in the transportation branch of the petroleum industry.

Because of different soil conditions existing in the various territories traversed by a pipe line, the need for protection varies or the precautionary practices to be adopted must needs be changed.

In some districts it is sufficient to insulate the pipe with a heavy tar paper wrapping and in others even this is not considered necessary.

Swampy territory, where decaying vegetation forms acids that attack and pit the pipe, calls for greater protective measures if sections of the tube are not to be replaced after a period of years.

Some soils contain acids, or alkali salts, in addition to the acids formed by decaying vegetation. Wherever such a situation exists, pipe line companies have found it to their advantage to take such steps as may seem best suited to the conditions found in order to avoid the necessity for early replacement.

When pipe is placed in the ground without covering it naturally comes in contact with whatever acids or alkali salts exist in the soil. The extent to which they attack and pit the pipe varies from place to place, hence the position taken by some pipe line managements that it is not desirable to protect the entire length of the carrier system.

Applying tarry coat to Humble Pipe Line Co.'s 8-inch line from the Big Lake district of west Texas before burying in ditch.

Methods Vary Greatly

A canvass of a number of operating heads of pipe lines develops that they have adopted protective policies that are in almost all cases different.

One company seldom takes any protective steps whatever in building a new line, taking the position that it is less expensive to make replacements in parts of the system than it is to insulate the pipe from one end to the other.

Corrosion having set in, this company takes up the section of the line affected and uses either an application of bitulithic material or a patented preparation sold for pipe protective purposes.

Another company wraps its pipe with tar paper at points where soils are known to have corrosive effects and where the ground is not of swampy character.

One of the most successful expedients utilized as a pipe protective measure is described as that taken up a number of years ago by the Standard Oil Co. of Louisiana (now the Standard Pipe Line Co., Inc.), which encased its system through the swampy districts north of Baton Rouge with concrete.

Although described as successfully accomplishing the purpose for which it was intended, the concreting practice has been abandoned in the company's more recent pipe line construction. When this plan was first utilized concreting was possible at a cost of approximately $2,000 a mile in comparison with a present outlay that would amount to about $6,000.

Effect of Chromium

A patented preparation used by some companies for coating pipe is described as consisting mainly of chromium in refinery tailings, which gives a saturated solution in water; this keeping water from affecting the pipe in the form of rust.

Whatever the substance used it will serve its purpose provided it will effectively insulate the pipe from acids in soils; and, again provided, that the substance will not in itself deteriorate the pipe because of its contact with soil acids and alkalis.

Any substance that is soluble in oil is described as being less efficient than a non-soluble material, because of the possibility of leaks in a pipe line; but the further statement is made that in comparison with other protective measures, which may be regarded with even less favor, there remains the fact that oil in itself is to an extent a preservative.

Bulletin on Corrosion

While the discussion here is mainly on trunk lines, a related topic is corrosion of any underground equipment, such as casing and tubing. An extensive discussion of the subject was recently published as Bureau of Mines Bulletin No. 233, by R. Van A. Mills. A paragraph on certain methods of treating not previously mentioned in this article is as follows:

"Various dry high-temperature methods of treating iron and steel with zinc, aluminum and chromium are now being applied or developed. It is claimed that by these methods the protective metals penetrate and alloy with iron and steel to form thicker and more durable coatings than those formed by the ordinary hot-dip and electroplating methods. Thus the sherardizing process of coating iron and steel with zinc is said to yield a thicker and more durable alloy of iron and zinc under a superficial zinc coating. This process is claimed to afford better protection against corrosion than other methods of galvanizing.

"Whether or not sherardizing casing and tubing can be made to withstand corrosion in oil and gas wells is problematic. The process has not been worked on so large a scale. Calorized steel, which is coated with an alloy of iron and aluminum, is especially servicable in withstanding the effects of high temperatures but until it is tried there is no certainty that it will have special advantages for oil-well use. Chromized steel, which is coated with an alloy of iron and chromium, will probably resist corrosion in oil and gas well equipment."

Electric Power Used in Drilling 6800 Feet Deep in Colorado

By A. F. Hinton

N. P. N. STAFF WRITER

TULSA, June 20

DENVER has long been noted for being a "mile high," but it remained for Oklahoma oil men to find a point in Colorado—or under it—that was a "mile low" and then some. To be exact, these men have punched a hole through Colorado's fair bosom to 6790 feet as the crow flies, and are expecting every day to begin finding pigtails in the bailer. They are going in the opposite direction to find the celestial regions, according to accepted geographical data, but if they keep on they will burst right out into the Celestial kingdom and get a rainbow showing of opium in the slush pit.

The intrepid pioneers conducting this expedition into the nether portions of the earth are none other than the gentlemen comprising the Roland Oil Co., not only of Oklahoma, but of Bristow. They are the same men who jumped into fame a couple of years ago by drilling in one of Oklahoma's largest wells, the No. 1 Alex, in the Bristow district, which was reputed to have made as high as 18,000 barrels daily. Of more recent date, they have placed Bristow on the radio map by establishing station KFRU from which the "Voice of Oklahoma" goes forth nightly. All in all, they are prominent citizens, and they are showing the world that they are not to be taken lightly when they decide to make a deep test.

Dusky M. Freeland, one of the Freelands, who with the Rollestones, make up the Roland Oil Co., is in charge of the company's drilling wells in Colorado; he was back in Bristow on a visit the other day, and had some very interesting information to impart as to the progress being made on the so-deep hole. Before going into that, perhaps we had better explain that Roland is a combination of the names Rollestone and Freeland, in which the former furnished the roll and the latter the land, or something like that.

To get the record straight, the Roland well, or the A. A. Rollestone well, as it seems to be known in Colorado, is the No. 1 Johnson, and is located in the SW¼ of 34-2N-69W, in the Denver basin, Boulder county, Colo. It started out on geological information that the Dakota sandstone would be found at somewhere around 7000 feet, and at last reports had only about 200 feet more to go to find out if this information was reliable. It is a pretty expensive way of checking up information, but possibly it will be worth it. When last heard from, the crew was engaged in drilling up what was left of a 6-inch bailer after it had been dropped a mere matter of 5000 feet. Inasmuch as the bailer was empty and the hole was dry, it is believed that it had attained considerable velocity before striking bottom, and it was therefore not deemed expedient to try and fish it out.

The well started drilling July 17, 1924, and it is noteworthy that it made 6260 feet in the ensuing 120 days, or about 52 feet a day, including all delays and everything. It is being drilled with a General Electric Co. 75 h. p. drilling motor, and is believed to be the deepest well yet drilled with electric power. If anybody knows of a deeper one, we should be glad to hear about it, and won't mind retracting that statement. The company built three miles of transmission line from the high line of the Colorado Public Service Co., which has a power plant at Boulder.

The company and the crew on the well are veterans in drilling with electric power, having drilled several that way in Oklahoma, and are enthusiasts on the subject. Mr. Freeland says that the electric motor gives an unlimited choice in the matter of speed and drilling motion, is sensitive and under excellent control. With this motor and with the well at its present depth, they can pull the tools out in 15 minutes, which no-

Roland Oil Co. No. 1 Johnson, Boulder county, Colo., which has reached depth of 6810 feet. The well is being drilled with electric power. Transformer bay shows at right.

Editor's Note—Later news on the test described in Mr. Hinton's article is that the crew got out of the trouble caused by lost bailer and proceeded to have some more grief. Everything was going along nicely; drilling had proceeded to 6810 feet when the rig burned. It is being rebuilt and hole is in condition to go ahead.

body will deny is stepping right along. Through use of an ammeter placed handy to the driller's eye, variations in load on the motor are instantly recorded, so that the driller knows exactly at all times what is going on down in the hole. He can tell exactly the moment the tools are on bottom or off bottom and can regulate his speed and motion accordingly, with no guess work. In running casing, the same thing applies. In fishing, the ammeter tells immediately if the tools have taken hold of anything, as the added weight is immediately reflected, and so on.

At the 6260-foot depth already mentioned, the company ran a string of extra heavy 4¼-inch Standard seamless casing, weighing 21 pounds per foot, and fitted with extra heavy collars. Since setting the casing at that depth, the hole has been straight-reamed down to 6445 feet, which is the present length of that remarkable string of pipe. This string of casing alone probably weighs about 145,000 pounds, including the collars. It is noteworthy that, in lifting this string, it is necessary to pull five feet of tension before the pipe leaves bottom.

Other casing in the hole, with the depths given in round numbers, is as follows:

80 feet of 20-inch surface pipe.
600 feet of 15½-inch 70 pound.
1200 feet of 12½-inch, 50-pound.
2000 feet of 10-inch, 40-pound.
3400 feet of 8¼-inch, 32-pound.
4500 feet of 6⅝-inch, 26-pound.

Equipment Used

All this casing is Jones & Laughlin pipe, and was purchased through the Frick-Reid Supply Co. at Tulsa. Altogether, there are probably about 280 tons of pipe in the hole.

Derrick floor scene, Roland Oil Co. No. 1 Johnson, Boulder county, Colo., showing Bovaird grip elevators used on long string of 4 ⅜ inch casing. The well has been drilling to 6790 feet by the same crew that started it last July. The two drillers, Grant Uhl and W. E. Babione, and the tool dresser, John Craker, are the three men at the left. Bill Henshaw, the other toolie, is not in the group. S. P. Brown, tool pusher, is in the center. The other men comprise the crew of another Roland well near Calahon, Colo., they having come over to the Longmont well to help run the long strip of pipe. They are Joe Bills and Joe Freeman, drillers, and Tom Brown and Joe Whitmore, tool dressers.

The well is being drilled with a Wertzberger standard type derrick, which was one of the first of these derricks erected after they were designed and placed on the market by the D. D. Wertzberger Co., of Tulsa. The derrick has not been strengthened in any way, the only reinforcement on the rig being a truss built on the walking beam to relieve the strain on that member somewhat. Special-built Marion rig irons are being used, with an O. C. S. chain-driven sand reel. The cable is a special strength ⅞-inch Roebling wire line, 7500 feet long, made to order for the job. The operators are now considering purchase of a tapered wire line on account of the extreme depth of the hole and great weights to be handled. Other material include Camel's hair belting and Whitlock bull ropes.

When the well reached a depth of 5700 feet, the operators built a specially designed extra large band wheel, 12 feet in diameter, which probably is a feature unique to this well. The use of this large band wheel provided more power and better control and relieved the motor considerably. All pipe in the hole has been successfully handled with the Bovaird grip elevator, which is shown in use in one of the pictures accompanying this article.

Four Fishing Jobs

During the well's progress, only one small showing of gas has been found, this occurring at 4800 feet. Only four fishing jobs have marred the serenity of the crew, of which the present one of getting rid of the dropped bailer is the most serious, the others having been overcome without much delay or difficulty.

It is interesting to note that the same crew has been working on the well from the start; its members are all from Bristow or vicinity and have been working for the Roland interests for some time. They are W. E. Babione and Grant Uhl, drillers, and John Craker and Bill Henshaw, tooldressers.

This deep test is furnishing extremely valuable information as to subsurface conditions, and is being followed closely by geologists and others who are interested in such things. The Colorado School of Mines, at Golden, arranged for samples to be taken from the well every foot or two all the way down and the authorities there have been making microscopic studies of them. Considerable interest also has been aroused by the high temperatures found at the bottom of hole as the well drilled deeper, and it is possible that a scientific test will be made to determine the actual temperature of the earth at around 7000 feet.

TULSA.—The National Oil & Development Co. and the Continental Oil Co. have moved their main offices from Oklahoma City to 302 Atlas Life Bldg., Tulsa, according to A. B. Butler, Jr., president of the Continental.

Drilling to 10,000 Feet Probably To be Reached in Future

By Paul Wagner

N. P. N. STAFF WRITER

HOUSTON, June 20

THE statement is seriously made in the petroleum industry that "it seems very much more probable now that we will soon drill to 10,000 feet than it did in 1902 that we should go down 2500 feet."

In an economic sense, "the importance of this is that each deeper drilling renders available to man's use oil deposits previously unattainable."

The quoted phrases are borrowed from the previously published answer of President W. S. Farish of the Humble Oil & Refining., to the Federal Oil Conservation Board questionnaire.

Mr. Farish's observations provide a "key" for a number of independently made studies of what deeper drilling will mean to the future of the petroleum industry.

It is axiomatic that market considerations will, in part, govern the time when drilling to great depths will become general practice. Another point of economic interest is that acreage considered unfavorable for production at present drilling depths will, in many areas, take on a different aspect when operations are carried to 10,000 feet regularly.

With few exceptions, if any, production at great depths will come from beds in the geologic column that now yield oil from shallower levels. The deeper production will be found at points structurally favorable down the sub-surface dip of the beds and will not come from horizons lower in the stratigraphic column than are now productive.

Field Characteristics Vary

The characteristics of fields to be developed at great depths will be affected by rock pressures and temperatures. In general, such fields may be expected to be more highly flush in their early outpour and in many cases their areal scope will be smaller than pools found at shallower depths.

An increase in temperature of about 1 degree for each 55 feet of drilling depth is approximately the change to be expected. Variable factors, however will exert their influence similarly as rock pressure is controlled by conditions other than those found at the actual drilling site of a well. Rock pressure has been found in engineering practice to increase 43.4 pounds per square inch for every 100 feet drilled.

If mountains are present in an area where drilling is under way it is necessary, however, to check the elevation at the casinghead of the well and at the outcrop of formations in the mountains to reconcile rock pressures on an engineering basis. Probably the hydraulic head is controlled by conditions in the mountains, thus accounting for the higher rock pressures found in the fields like Mexico and others outlying from the front ranges in this country.

Safety Factors Important

When the time comes that drilling is carried 10,000 feet below the earth's surface the building up of safety factors beyond present collapsing points of materials will be a consideration of the field operating and equipment manufacturing branches of the industry.

Seamless upset pipe, casing and tubing will be required as standard equipment, because of their greater tensile strength in comparison with other materials. The extent to which elasticity of handling can be maintained in the use of equipment will be an important factor affecting operations. Whatever strength can be given material without corresponding increase in weight will, therefore, prove advantageous.

Machinery in general will require some strengthening, but not in proportion to the demands to be made on drill-pipe, tubing and casing. The safety factors governing the use of these materials under given conditions are known and it will be only necessary to use equipment of proper specifications for the purpose intended.

Except in cases where sands cut out materials through abrasive action, most pipe and casing failures result from seams. These troubles can be, at least, minimized by the use of upset seamless casing, tubing, etc., including collars.

Tensile Strengths Increased

Steels used in the manufacture of drilling materials formerly were made with tensile strengths around 60,000 pounds to the square inch in comparison with present ratings as high as 80,000 to 100,000 pounds. Perhaps these strengths can be further increased without adding too great weight and, thereby, hampering the elasticity of the equipment in use.

It is certain that utilization can be perfected beyond its present scope as indicated by the use of valves on the bottom of heavy strings of drill pipe to float them in and out of rotary drilled holes in California.

H. C. Cooper of the Hope Natural Gas Co. has pointed out in connection with deep drilling in the Appalachians that "it has been found advisable in some of the long strings of lap welded casing to use heavy plain end pipe and weld together the lower half of the string. By this means the collapsing pressure can be taken care of and at the same time the upper part of the string telescoping the next outer string can be lighter than the lower part and, hence, not make clearance too close."

With seamless light carbon steel it appears to him, he said, that these casing problems may be simplified, as comparatively light pipe may be used and collars will permit of good safe clearances.

"For handling long strings of casing we have found it advantageous to use a 5-shieve running block, thus giving 10 casing lines in the derrick. With a large engine this makes it possible to lower the pipe very slowly through sections where the walls are caving, and permits a very cautious handling through all operation."

Drilling Below 7000 Feet

Four test wells in the Appalachian region and two in California stands as the American industry's contribution to drilling below 7000 feet.

Hope Natural Gas Co's. No. 1 J. H. Lake, drilled to 7579 feet in Marion county, West Virgina, is the deepest of the group. Its Goff test, near Bridgeport, Harrison county, West Virgina, was in second place at 7396 feet, until a few months ago when the Peoples Natural Gas Co. found gas at 7428 feet in Westmoreland county, Pennsylvania.

Third place was occupied until 1924 by the Geary test of the Peoples Natural Gas Co., in Washington county, Pennsylvania, but its depth of 7248 feet has now been exceeded by the No. 1 Gardena of the Union Oil Co. of California, down the north flank of the Dominguez, Cal., structure.

The Gardena test, which is the deepest ever drilled with rotary tools and equipment, was put down to 7319 feet. Its depth exceeds by 107 feet that of the No. 2 Brownrigg-Kellar, drilled to 7212 feet at Santa Fe Springs by the Standard Oil Co. (California).

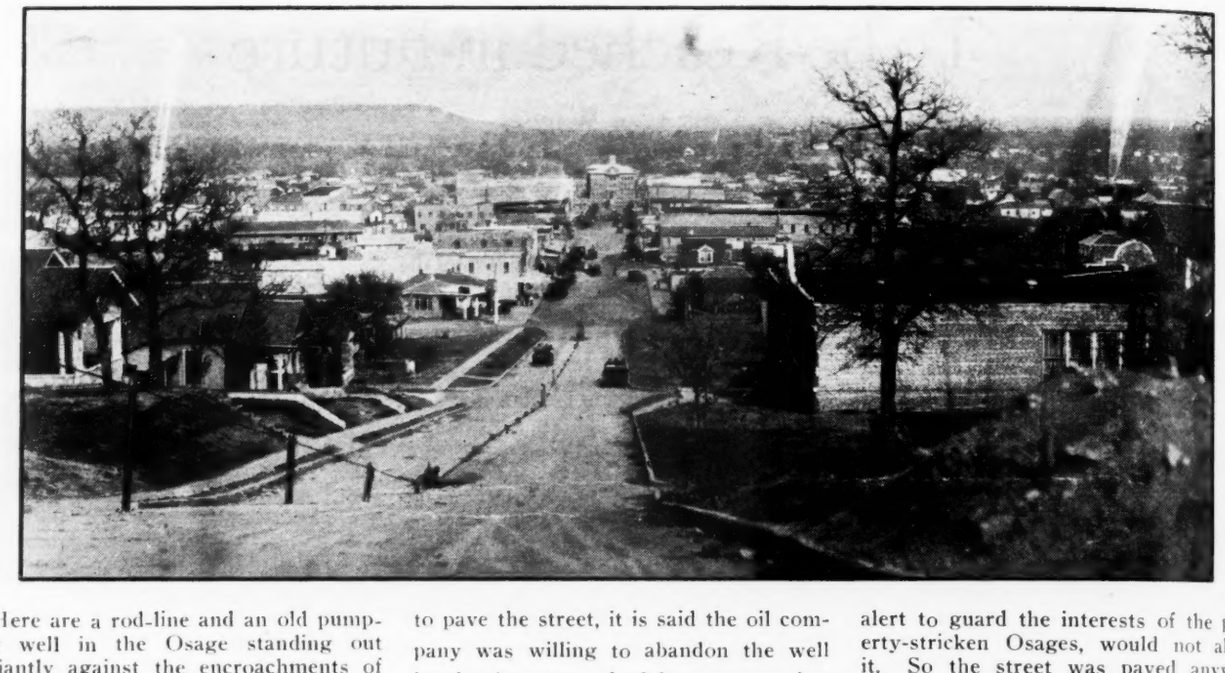
All the Appalachian tests mentioned were drilled with cable tools, which were also used in the putting down of a 7359 foot hole at Gzuchow, Germany.

Deepest Producing Well

The deepest oil producing well in the world is the No. 1 Amestoy of the General Petroleum Corp., in the Rosecrans, Cal., field which came in early in 1925

(Continued on next page)

"Shackle Rod Street" Reality in Barnsdall, Okla.



Here are a rod-line and an old pumping well in the Osage standing out valiantly against the encroachments of civilization. It's the main street of Barnsdall, Okla. When the city decided to pave the street, it is said the oil company was willing to abandon the well in the interests of civic progress, but the Interior department, ever on the alert to guard the interests of the poverty-stricken Osages, would not allow it. So the street was paved anyway, and the old well is still pumping its two barrels a day.

(Continued from previous page)

for about 150 barrels daily at total depth of 6737 feet. It also was rotary drilled.

Rotary drill-pipe was floated into the Amestoy and Gardena wells by means of valves attached to the bottom of it, because of the severe strain on drilling string in the case of the Gardena weighed more than 57 tons; in the case of the Amestoy, the string weighed 171,704 pounds or roundly 86 tons.

Drilling was carried to 7180 feet with 6-inch pipe, after which 4-inch was introduced, in the Gardena well. In the case of the Amestoy, the General set 6606 feet of 6¼-inch, 26-pound casing, before deepening to 6737 feet and running 3-inch screen liner to bottom.

Cementing Amestoy Well

The 6¼-inch casing was cemented with 155 tons and landed in 59 minutes in the Amestoy well. A quick-setting reagent was used and 20-tons of pure barytes was pumped down the hole behind the cement to facilitate its circulation back of the casing. The barytes was mixed with rotary mud to bring the weight up to 100 pounds per cubic foot.

Superior weight of the barytes mud drove the cement down the hole and back of the pipe in about 30 minutes, whereas with the pumps this phase of the job would have required several hours. This would have meant keeping the cement in circulation beyond the time of initial set, with the possibility of an unsatisfactory job.

Ben K. Stroud, field engineer of the National Tube Co., at Los Angeles, in a recent communication to National Petroleum News, referred to this use of pure barytes and also the adaptability of amorphous barytes to the lessening of abrasive action in rotary mud under actual drilling conditions.

Better lubrication for steel will be required in drilling to great depths, according to Mr. Stroud, who, however, points out that foreign materials such as sand will separate themselves from a thin barytes mud more readily than they will from a very viscous mud.

Mr. Stroud's investigations in California have indicated to him that twist-offs and failures in drill-pipe mount up in proportion to the percentage of sand in the fluid system. He says that by keeping the sand content as low as possible the drill-pipe will not only run more freely but there is a corresponding reduction in the number of twist-offs.

The Amestoy well of the General was drilled without a fishing job of any nature. The Gardena well of the Union had 12 twist-offs. Eleven of these were recovered and one required sidetracking, notwithstanding which only 28 days working time was spent in fishing.

Biggest "Fish" Landed

An exceptional fishing job was encountered in the Gardena test when the drill-stem parted 40 feet below the rotary table, due to the strip of the threads. An overshot was run and the string of drill-pipe, more than 7100 feet in length, was lifted 10 feet. Then it slipped out of the dogs and dropped into the hole. When recovered by J. W. Maddox, driller, and his crew, the heaviest and longest "fish" on record had been landed. The string was 7187 feet long and weighed 57 tons.

According to Desaix B. Myers, assistant chief geologist of the Union, the condition of the hole when abandoned would have permitted further drilling but no good purpose would have been served by so doing.

What Eastern Tests Show

In Eastern cable tool drilling it was found by Mr. Cooper of the Hope Natural Gas that deep operations should be started with a comparatively large hole to permit the setting of an extra string of casing without making the hole too small for further drilling. This is a factor to be recognized in either method of drilling, and especially when the characteristics of formations are either unknown or only partially measured. The factor of elasticity of equipment is more satisfactorily maintained, however, by not increasing the size of the hole beyond actual necessity.

Tapered drilling cables were used on the standard tool holes in the Appalachian region, ranging in size from 1½-inch to ⅞-inch diameter, the larger part of the string being at the top where the weight exerts more influence.

The drilling cables used were of mild plow steel, 10,000 feet in length: the upper 4000 feet, 1-inch diameter, and the lower 6000 feet, ⅞-inch diameter, left lay. For the Geary well, when it became very deep, a special tapered steel cable was made in four sizes ranging from 1½-inch at the top to ⅞-inch at the bottom.

It is conceivable that tapering ranges may be somewhat further extended in still deeper drilling. The situation is analogous in both rotary and cable tool drilling, except that cables are affected when standard tools are used and it is drill-pipe that will come in for tapering under rotary practice.

Texas Co. Gets Increased Production With Long Stroke and Slow Motion

By A. F. Hinton

N. P. N. STAFF WRITER

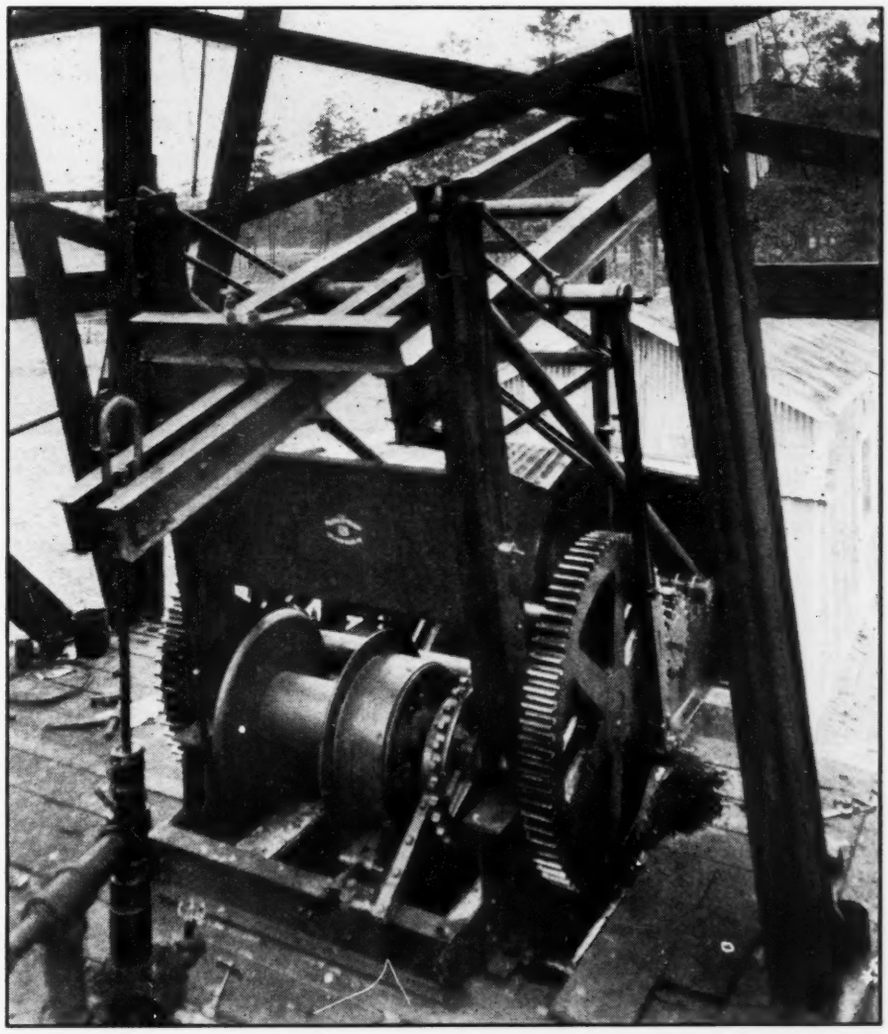
TULSA, June 20

ALTHOUGH many designs have been tried out with varying results, some good and some bad, there is no doubt that, in theory, long stroke, slow motion pumping of oil wells will result in longer stroke at the working barrel, less wear and tear on the rods, and greater lifting capacity, with resultant increased production and decreased trouble with water. In practice, it appears to be chiefly a question of proper design from an all-round engineering standpoint, with due consideration given to the locality, and even to the particular well, in which the long-stroker is to be used.

Ordinary up and down pumping, either from a power or from the beam, is a jerky process at best, although many refinements have been worked out to lessen this objection. A sharp jerk upward on the rods, followed by a sudden drop into the well tends to produce so much "lost motion" that the movement of the working barrel usually is a great deal less than the surface stroke. This tends toward setting up fatigue in the rods which ultimately results in breakage, brings up much less oil than would be possible with more scientific methods, and, in the case of wells making much water, makes it difficult to keep the well pumped off so that any oil at all may be obtained. Also, there is the problem of obtaining an absolutely straight lift, so that the arc described by the beam as it moves up and down will not result in bending and wearing the polished rod. All designs of long-stroke pumps have been so made up as to provide a lift as nearly perpendicular as possible.

The picture accompanying this article shows a slow-motion, long stroke pumping unit designed by A. B. Steen, chief engineer of The Texas Co., Houston, and now in use on a number of that company's wells. This is probably one of the most carefully and scientificially designed units of its kind now in use in the Mid-Continent or Gulf coast districts. While it is heavy and rather expensive, its results have been so successful that it has proved a very economical expenditure and has more than paid for itself in a short time through increased production and steady operation.

This unit is designed for wells capable of making a large amount of fluid under intensive pumping, and not for small-production wells, "strippers," or wells that can be pumped off every day or two. It seems to be a characteristic of many Gulf coast wells that the harder they are pumped, the more oil they produce, and that the water proportion diminishes with increased intensity of pumping. It was to get the maximum production from this variety of wells that the Texas Co. unit was designed, as well as to provide a slow motion, long stroke pumper.



Texas Co. 10-foot stroke, 10 strokes per minute pumping unit on well in Humble field, Texas. Front view, showing polished rod connections, beam, driving gears, connecting rod and built-in sand reel.

Production Increased

The company now has six of these outfits working in the Gulf Coast, north Texas, Smackover, and Shreveport districts. The one shown in the picture was the first of them to be installed, and is pumping well No. 28 C. O. & G., in the Humble field. Prior to the installation of the pumping unit, this well had been making about 300 barrels of oil, and was producing with an air lift. The long-stroker outfit delivers 1100 barrels of oil daily, with less water proportionally than was produced when the well was making 300 barrels. The power necessary to compress the air formerly used in producing the well and making 300 barrels daily was more than the power necessary to pump 1100 barrels with the present method, while the use of the air compressor, lines, etc., is eliminated as a further saving. The pumping unit at this well has now been in use steadily since Aug., 1924. The company is now installing one of these units on its Abraham No. 11, in the West Columbia field, only a location or two away from the famous No. 2 on the same lease, which was one

of the largest wells ever completed in the Gulf coast.

The Texas Co. long-stroke pump has a ten-foot stroke, and operates at a speed of 10 strokes per minute. At this speed and stroke, and with a 3¾-inch working barrel, it has a displacement capacity of 1967 barrels in 24 hours. At 1500 feet well-depth, it requires 20 net h.p. to operate. At this depth. the load on a ⅞-inch rod is 9640 pounds and on a ¾-inch rod, it is 8800 pounds, including weight of liquid and of the string of rods. Total load per square inch for ⅞-inch rods in 16,070 pounds, while for ¾-inch rods it is 20,000 pounds.

With the working barrel set at 2000 feet, 26.75 net h.p. is required to handle displacement already given. At this depth, the load on ⅞-inch rods is 12,855 pounds, including weight of liquid and rods, while the load per square inch on the rods is 21,390 pounds. The working barrel stroke is within a foot and a half of the surface stroke.

Friction Disc Clutch

The jack is driven by a 12-inch belt from a 30 h. p. Superior gas engine, running at normal speed. The belt drives a 48-inch pulley, mounted on a pinion shaft. This pinion shaft is provided with a friction disc clutch, so that engine can be started before setting jack in motion. The pinion shaft transmits power to a 54-inch pitch-diameter gear set on a countershaft. On the countershaft are two cast pinions which mesh with two five-foot gears, attached by two connecting rods to the structural steel walking beam.

The front end of the jack, or the end toward the well, is carried on two rigid channel-iron posts with bearings at upper end. These bearings are connected with links that lead back to the connecting rod, so that as the beam is moved up and down by the connecting rods, it also moves backward and forward to compensate for the arc described, and to keep the polished rod moving vertically up and down. The beam is further supported on a steel rocker-arm, which oscillates horizontally a distance equal to the rise of the arc mentioned.

Stroke of the polished rod is maintained constant by means of cast concrete counterweights at end of beam away from well. These counterweights are variable, their weight being calculated according to the load at each well equipped with the unit. Mr. Steen estimates that for a well 1000 feet deep, using ⅞-inch rods and 3¼-inch cups, the counter-weight should weigh 5420 pounds for a water well, and 5206 pounds for oil of 22.3 degrees Be. gravity.

An added feature of the unit is that it is complete within itself, no rig irons, bull wheels, nor calf wheels being required. It is equipped with a chain-driven, clutch-operated sand reel, or winch, mounted in a frame on the front part of the jack, as shown in one of the accompanying pictures, which handles all necessary pulling and hoisting work.

The complete unit weighs about 33,000 pounds. It is set on concrete piers specially designed and built to receive it. All the units now being used by The Texas Co. have been manufactured by the Parkersburg Rig & Reel Co., Parkersburg, W. Va. All that have been made so far have been delivered under contract to The Texas Co.

Field Superintendents Assist Company In Standardizing Equipment

By Lawrence E. Smith

N. P. N. STAFF WRITER

CLEVELAND, O., June 20.

UNIFORMITY of equipment for the field has long been considered by most operators a desirable end to work toward. Like many a plan admitted to be sound in theory, it has not been secured by a large number for a variety of reasons. It is difficult to make the start, particularly in companies where the practice had grown up of allowing the superintendent or foreman to designate the equipment he desired. In many instances also heavy stocks were carried and these must be used, which meant the continuance of buying of replacement parts of the same manufacture and the system was self-perpetuating.

The plan which has been worked out by one of the large companies in the industry, putting the company's purchases on a basis which has enough flexibility to satisfy everyone who is responsible for results with the equipment purchased, is of interest in showing how fairly simple it is to get uniformity.

An executive, of course, can standardize by merely ordering that it be done. But that isn't good business, generally. There is a vast amount of expert knowledge of equipment carried around in the minds of superintendents and the men under them and it is the wise executive who realizes that he will profit by using the talent of anyone who has intimate knowledge, gained through practice, of material.

So reasoned the officials of the company here discussed.

The job was rather a large one. The company had grown rapidly within the past few years and there wasn't a great deal in common between the district where the company has operated for years and the newer fields it has entered. Belts, for example, represented about as many different ideas as there were superintendents. In an 18-month period, they found by counting up, that 36 different makes of belts had been used. There had been much emergency buying in all lines.

Opinions are Sought

The start was made, after considerable discussion of the best methods to employ, by resorting to the questionnaire. Superintendents were asked to give their opinions as to the best makes of all staple equipment, such as belting, wire lines, cordage, derricks, engines, tubular goods, valves and fittings were some of the things inquired about. The men to whom the inquiry was sent were asked to express not only their first choices but second and third also. A letter was sent at the same time, urging that careful attention be given to the questionnaire and that the superintendent give the general offices his honest opinion. It was also stated that it was not to be inferred that any one man's opinion would determine the choice to be made; that all superintendents were getting the same letter and that something akin to majority rule would prevail, assuming that there were no reasons at the home office for setting aside majority recommendations on any equipment under consideration.

As it worked out, there was not such a wide difference of opinion after all. Some preferred this make and some that, but while the superintendent at Ranger might have a different first choice than the one at Wichita, the latter's first choice might be the Ranger man's second or third choice. Quite a number of makes of equipment in service somewhere on the company's properties were not recommended at all, as they were emergency purchases at a time when quicker delivery could be had on them than on something else that was preferred.

After getting all the replies, they were carefully studied and it has been possible to give every superintendent what he wants. Perhaps the engine he now gets was not his first choice, but in most instances he gets one that was his second or third choice and he had no prejudice against it.

Wishes Generally Met

It was not merely a gesture to please the superintendents, the company has honestly followed the recommendations as far as possible.

Having analyzed the preferences and decided upon the makes of equipment, the company negotiated with the manufacturers to the end that contracts were placed for periods of six months to one year and conditions were further bettered by working out agreements with the manufacturers whereby the equipmen would be carried in supply stores instead of the company carrying excessive stocks as it formerly had Some one of the supply companies has

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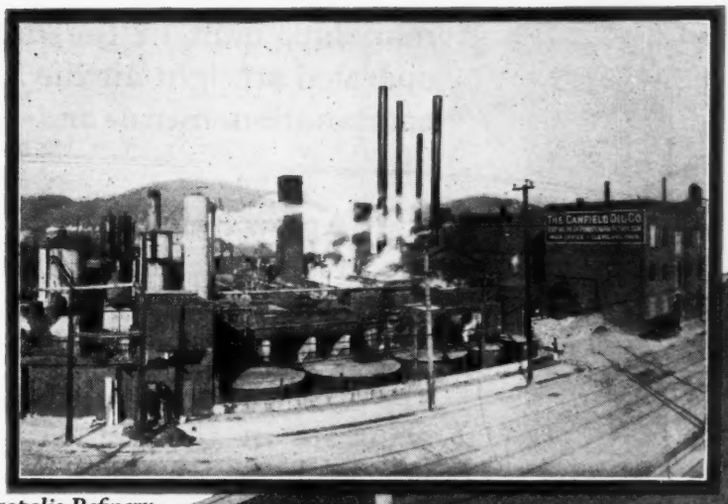
compartment tank cars



Canfield's Coraopolis Refinery

CANFIELD *Compartment Tanks average 5000, 6000 and 7500 gallons capacity—with three compartments, each containing 35, 40 or 50 barrels to the compartment.*

Arrow Visible Pumps

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(Continued from page 90)

a store at every place in the United States where a supply store is needed at all and the manufacturer made his arrangement with these.

This phase of the reorganization has resulted in a vast reduction of the capital tied up in warehouse stocks. In one warehouse in an active district, the inventory has been reduced within the past year to about one-fifth of what it was prior to the new arrangement.

Replacements are Available

Interchangability of equipment and parts was one of the results sought and the system is entirely satisfactory in this respect. Recently a car load of fittings was shipped from one district the company operates into another where they were needed. Formerly this might not have been of any use as they might have started using in the second district a different make. One kind of belting is now used in all districts and belt ends will serve on any property. It used to be necessary to buy short pieces of belting in order to match something on hand. What can be done by cutting down the number of kinds of gas engines used by the company is, of course, obvious.

One district superintendent is now able to call upon another for equipment or parts with the assurance that he will get what he needs. No telephoning around to this district and that in an emergency to see who has it; the nearest district will be able to supply it.

The question may well be asked, does this standardization and central office purchasing confine the initiative of the superintendents and others under them? Does it tend to keep down an interest in new ideas in equipment? For there is not much in this company any more of the salesman going to the superintendent and asking him to try out free something new.

With the company under discussion it is urged that the superintendents keep right on studying equipment just as though they were authorized to buy it. When they see something new that a manufacturer has brought out or read of it, they are asked to consider whether it will be of any benefit to them. If they are interested enough in it, they are asked to call upon the home office to buy one of the new articles and have it sent out where it will be tried. There is no such thing in this country any more of permitting manufacturers to send out devices for free trial; if a superintendent thinks his job would be better handled with something that purports to be an advance on existing methods, he tries it out at his own company's expense.

From time to time the home office bundles up the circulars and pamphlets sent to it by manufacturers and mails them to superintendents with the request that they look them over and tell the home office whether there is anything in the lot they would like to try. If so, one is bought.

Interest in Methods of Increasing Recovery is General

CLEVELAND, O., June 20

RIGHT now there is probably more interest in methods of increasing recovery of oil than ever before. It is natural that such should be the case, for there are more properties now that have reached the stage where some artificial restorative should be applied in order to show a profit.

So, operators and petroleum engineers have been putting their minds on this problem in increasing numbers and there is considerable going to and fro to districts where methods of increasing recovery have been made general practice.

The methods now receiving consideration come under two general headings, viz; mining and the restoration of pressure. (Vacuum, or the removal of pressure, is universally used.)

As to mining, there are as yet no installations of a commercial nature in this country, although several are contemplated. Among those which have been given publicity are the Ranney process, worked out by Leo Ranney, now of Jacksboro, Tex., and operated on a small, experimental scale in the old shallow field near that town. It has been visited by scores of operators and engineers and several licenses to use the process have been granted. The Standard Oil Co. of New Jersey owns an interest in it.

John L. Rich, of Independence, Kans., is the originator of another method. Patent has been issued on this and it is reported that it will be tried out in the shallow district of southern Kansas. Some tentative plans have been made by E. G. Sinclair, of the Midwest Refining Co., Casper, on still another method and experimental work doubtless will be done in the Salt Creek field within the next year or so.

Other engineers have given consideration to mining methods, but popular interest still appears to center upon restoration of pressure to the oil sand and the increasing of production of present wells or others drilled to take advantage of the increased pressure.

Two Pressure Methods

Two principal methods of restoring pressure are used. One is the water drive used in the Bradford district of Pennsylvania and the fields of New York and the other is the application of compressed air to the oil sands, used extensively in southeastern Ohio, Pennsylvania and West Virginia and lately introduced in the Nowata district of Oklahoma.

As to flooding, it is something to be approached with caution. It has been highly successful in the Bradford-Allegany district and has resulted in the rejuvenation of a district that otherwise would be unimportant today. Production of the district is actually increasing and there is still much territory to be flooded. While this method does not recover all the oil—there is a high percentage still left after the water has passed through the sand, as recent core drill tests have shown—it enables the operator to stay in business at a profit, and that is the first requisite to the operator.

There are so many factors to be considered, however, that any operator who has the idea of putting water into an oil sand should indulge in long and serious study before he yields to the impulse. The Bradford sand is sufficiently resistant to the passage of water that a fairly uniform push behind the oil is obtained, which would not be the case in a sand of coarse texture.

Detailed discussion of flooding is not attempted here. There have been numerous articles published in National Petroleum News which afford a starting point for the study of flooding. The best advice the writer can afford at this time to anyone who is thinking about using the water drive outside the Bradford district is don't do it without going to the expense of making a thorough investigation of all the factors involved and the reasons why it works in the Bradford field. Of course, there is a lot to learn yet about the Bradford field, even by the operators who have been most successful with the method, but there is enough information available to guide the man who has had no experience. Once the water is in the sand, it is a bad thing to have if it doesn't do the work.

No Danger in Trying Air

On the use of compressed air, it is not such a fearful thing to contemplate. It is something that can be experimented with and no vast harm will be done if it fails to get results. The chief trouble is that experimentation is expensive and because of the expense mistakes are sometimes made that lead to a condemnation of the method when in fact it has not had a fair trial.

The discussion is not intended to be more than general. To attempt to lay down specific rules as to what equipment to install would not only be too lengthy; it would be futile. The conditions under which the producer is operating vary so greatly that what will work in one locality will be folly in another.

The writer recently discussed the subject with the engineer of one of the large manufacturers of compressor equipment. This company has made a pretty thorough study of the use of air on oil sands because it is directly concerned with it. Engineers of this com-

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National Petroleum News

824 Caxton Building **Cleveland, Ohio**

pany constantly advise with producers on equipment required for restoring pressure to oil sands and receive numerous inquiries on the subject.

Usually, they are asked what size equipment is needed for a lease of such and such size and having so many wells. They invariably reply that there is no general rule that can be laid down; that the problem isn't simply one of putting in a certain sized compressor and putting the air in a number of wells. Unless air has been used in the same district, there is nothing to go by at all and considerable money might be wasted in starting too large. On the other hand, very small equipment would not give an adequate test.

This company engineer told of one producer who wanted to try the method and he rigged up a small compressor with a small gas engine and started putting air in one well, watching for results in the next one. He was able to deliver only a small amount of air and he was extremely disappointed when no gain came in production. At the rate he was putting air into the well, it would have been years before any effect would be had.

Few Publications Available

Of published information on the subject of compressed air on the oil sands there isn't a great deal. James O. Lewis published as Bureau of Mines Bulletin No. 148 more than has been given before or since, but many advances have been made in the practice since then. The firm of Smith, Dunn & Lewis—Mr. Lewis having become a member since his bulletin was published—probably has made a closer study of the subject than anyone else and they do a general consulting business besides operating extensive properties of their own, using air as a restorative. They are not telling what they know, however, except to clients for the good reason that their knowledge is what they are selling.

Therefore, in the absence of public information on the subject, should the operator decide to go ahead on his own hook, there are several things he should avoid doing.

He should not expect a great deal if he installs air on a very small lease. If he operates a small strip lease the best thing he can do is to get into some arrangement with his neighbors whereby the expense will be divided and the increase prorated equitably. Certain it is that if he does the decent thing and stays back from his line the customary distance, some of his oil will be forced over to his neighbor's wells. Some have tried putting air on the center of the lease, or some distance back from the line and vacuum to their wells near the line and have had satisfactory results; in other cases the vacuum has merely assisted the air in cutting through a channel of less resistant sand.

The operator should not expect increase in production immediately. It may require weeks, or even months, to

build up pressure sufficient to move any considerable body of oil.

A low pressure will not afford a fair test. Certainly, in experimenting with air, pressure of from 40 to 60 pounds is recommended by certain engineers.

A mistake that has sometimes been made is in merely putting the air inside the casing and expecting to affect the oil sand. Sometimes this has been done with considerable open hole above the sand. The air then finds its way out through formation less resistant than the oil sand. Even if the well is cased to the top of the sand there may be enough corrosion holes or it may be so imperfectly seated as to permit the escape of the air in such quantity that it will not be forced into the sand.

The inter-relationship of wells is such that use of air should not be condemned in case the nearest wells fail to increase their production. It is necessary sometmes to shift the location of the pressure well or wells several times before gain is effected.

There are some sands too tight to take air. It does not always follow, however, that that sand will be unresponsive everywhere. An interesting illustration of this is found in two widely separated areas in Ohio where production is from the Clinton sand. In the Wooster district, the Ohio Oil Co. some time ago tried compressed air. Pressure was held at 200 pounds for about a month; the sand apparently took no air at all and the operators even tried to pull it through by vacuum on the next well. There was no result whatever. It had previously been demonstrated that the sand would not take water.

In the Black Run field, farther south, where production is from the Clinton sand, the Pure Oil Co. re-shot a well with 200 quarts. The hole bridged over and the company was several days in cleaning it out. It was bridged tightly and while in this condition the gas was confined. A well 1200 feet away increased in production from 1.7 barrels to 3.9 barrels a day. Doubtless compressed air in this field would get the same result.

The writer has heard the compressed air method dismissed by some operators with the statement that it is chiefly useful in southeastern Ohio because of the greater "looseness" of that sand. That is being disproven rapidly and it will be found that there are fields all over the country that will be benefitted by the use of air on the sands. In a limestone formation, where oil is found in crevices and in sandstones where the variation in porosity is so great that the oil is found only in the lesser cemented spots, with streaks of the sand so tight as to have little or no saturation, it is a doubtful experiment to try the air method, except as from one well to another. But in most sandstones which are saturated throughout, some benefit and hence some profit will be had by restoring the pressure.

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National Petroleum News, 807 Caxton Bldg., Cleveland, Ohio

Compressed Air on Sand Gets Big Result in Small Pool

By Lawrence E. Smith

N. R. N. STAFF WRITER

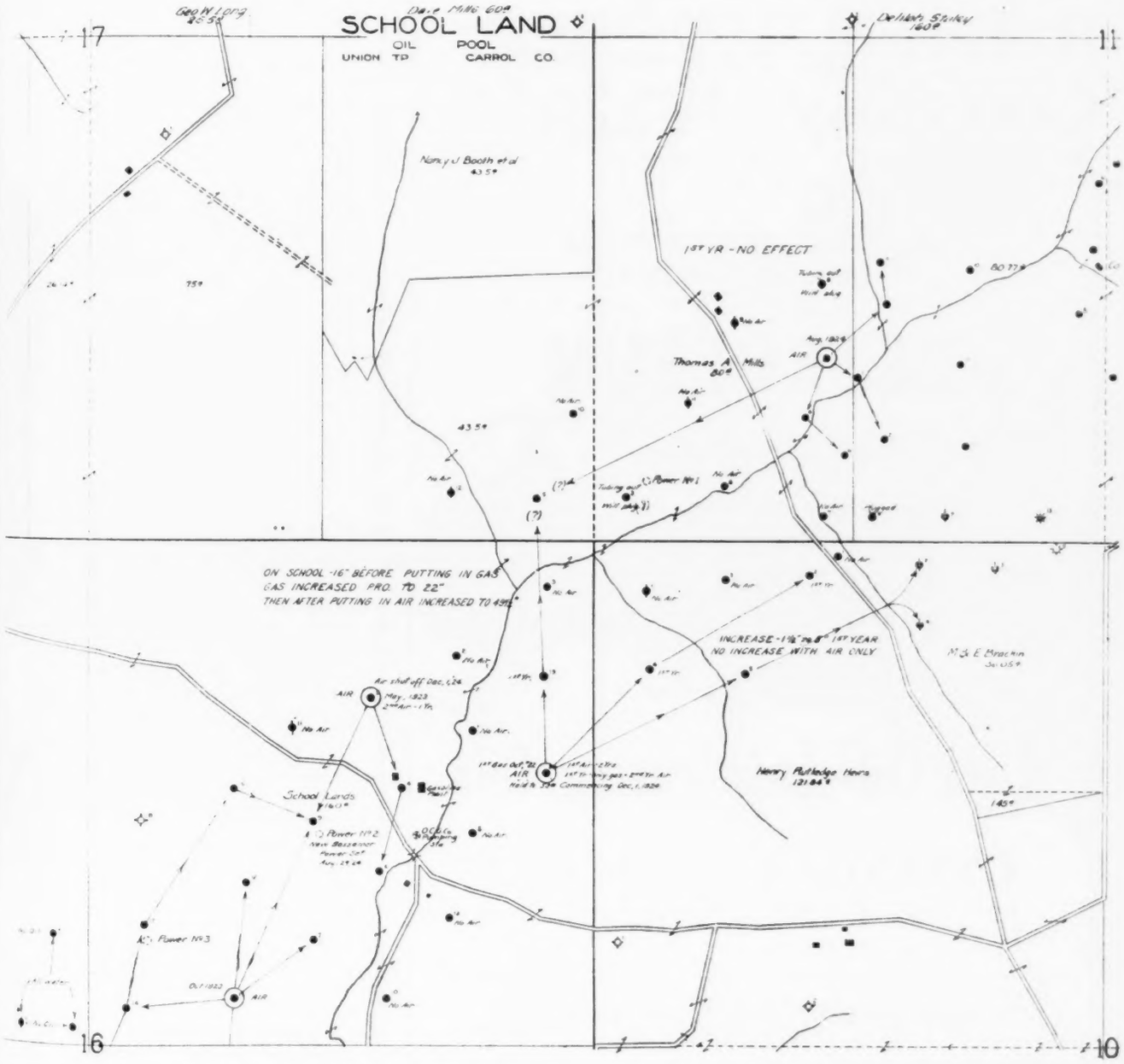
NEWARK, O., June 20

An interesting and fairly conclusive test of the compressed air method of restoring pressure to producing sands has been under way for some time by the Pure Oil Co. on its properties in Carroll county, eastern Ohio.

That the results have been worth while is seen in the fact that when the application was made, the total production for the company in this field was 7½ barrels per day and that it was increased to a maximum of 49 barrels. It is also interesting to note that last winter, when it was feared that the gas was not sufficient, aerated as it was, to operate the engines, the pressure was cut off and the production promptly tumbled back to 10 barrels per day.

The property is in Union township, Carroll county, and is the greater part of a small field that was fully developed some years ago. The pay formation is the Berea sandstone, which is one reason why this test was of unusual interest. The Berea had not been the subject of much experimenting before. It must be realized, however, that the Berea at this place does not conform to the characteristics of the Berea in some other eastern fields, being somewhat softer and more open.

Depth to the Berea in this field is from 1000 to 1200 feet. It is divided into two well recognized zones with the pay being in the bottom. The top part is generally about 50 feet in thickness while the pay portion of the sand varies from 2 to 10 feet. In the



Map of the Pure Oil Co.'s property in Carroll county, O., where good results have been obtained by putting compressed air on the pay sand. Arrows indicate, as nearly as can be ascertained at this tme, the "push" exerted by the air.

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center of the field the pay is thicker and it thins out to nothing on the edges.

Some wells in this pool made as high as 150 barrels initial; a few flowed that much without shooting. The pay sand is described as soft and sugary.

Rock pressure had declined, through steady application of vacuum for several years—a gasoline plant was operated—to 5 to 7 pounds. Prior to application of air to the wells, the company practiced for a time the returning of residue gas to the oil sand with fair results, but the amount returned was insufficient to effect any great change in the production. It did prove, however, that air could be used successfully.

No new equipment was required, as the gasoline plant, which consisted of a two-stage compressor and 80 horse power engine, was converted into an air plant. Two-inch lines were used for transmission of air and these were already on the lease. Wells selected for pressure wells were cleaned out and anchor packer set at the top of the Berea formation.

Late in May, 1923, the change was made and application of air was begun. As noted before the oil production was increased during the period to December, 1924, to almost seven times what it was. Certain wells showed an increase in rock pressure from five and seven pounds up to 35 pounds by putting in residue gas; that was not general for the field, however.

Air was started at 300 pounds pressure and no result was noted in the oil production for several weeks. The increase was gradual but steady once it began. The first result was that several wells began to cave. The pressure was then cut down to 150 pounds and was maintained at that mark. The high pressure, it was noted, blew some wells dry.

Up to December, 1924, when the air was cut off for lack of gas to operate the plant, rock pressure at several wells had been raised to 70 pounds and was reduced to 40 pounds by cutting down the plant pressure. It appeared to be most effective at the latter figure, as it afforded a more steady drive with less tendency to by-pass through less resistant parts of the sand.

Air was cut off on Dec. 1 and the result was to lower the production to 10 barrels, almost the same figure it was before air was applied. On April 1 last air was again applied. No results were noted for about six weeks.

On Dec. 1, 1924, total production was 33¼ barrels. Due to the cold weather, there was considerable down time in pumping and the yield had fallen below the maximum of 49 barrels obtained by putting on air. Air was cut off on Dec. 1 and the production on Dec. 31 was 23¼ barrels. On Jan. 31 it was 14½ barrels; February's average daily was 13.44 barrels; March's was 12 barrels and the April average was 10 barrels.

Air was applied again April 1 and the production on June 2 was 27 barrels.

Notes on Methods In Various Fields

By Paul Wagner
N. P. N. STAFF WRITER

Power Costs Cut by Installing Motors

Associated Oil Co., of the so-called Southern Pacific group, is taking steps to cut excessive power costs in the McKittrick, Cal., field. This reduction in costs is being effected by the installation of 42 motors at wells and eight electric drive pumps for the oil gathering system.

Motor installations will replace five steam plants, one located on the Reward Oil Co. properties and the other four on holdings of the Associated. The general type of motor to be used develops 15 h.p. on the pumping side when run at half speed. Arrangements are made whereby the same motor can be used for pulling the well. When used for this purpose, 35 h.p will be delivered.

Since the beginning of operations at McKittrick, according to the Associated, many of the wells have been pumped by steam engines operated from centrally located boiler plants. During the past several years accurate records have been kept showing the cost of steam operated equipment as being much higher than the costs of either gas engines or electric motors.

"Records kept at McKittrick over a period of years show," says the official house organ, The Record, "that where steam is used for pumping, the cost per well, for all the items connected with the maintenance and operation of the boiler plant, steam lines and steam engines, varies from $5 to over $7 per day. Similar costs for wells pumped with gas engines vary from $2 to $2.50 per day. The costs on a few wells which have been operated by motors have been very carefully checked against these costs, and it has been clearly demonstrated that motor drive equipment can be operated at a cost considerably lower than $2 per well per day.

"The excessive steam costs at McKittrick are due in considerable part to bad water conditions. The alkali water in this district soon obstructs the pipes, making it necessary to remove lines and bore out the alkali deposit."

Pipe Collapsed in Form of Hog Trough

The accompanying picture illustrates one of the troubles incident to the drilling of an oil well. The fact that this kind of grief does not result regularly in field operations fails to encourage the

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DEFIANCE OHIO

drilling crew when it does have to wrestle with a string of collapsed pipe.

The picture comes out of the collection of Harry L. Edwards, general superintendent of production in the light oil areas of Texas for the Humble Oil & Refining Co. It illustrates the junk fished out of the No. 3 Poindexter well of the Humble, in Shackleford county, after about 1700 feet of pipe had collapsed in slate formation.

The crew had set 10-inch at 1720 feet and drilled ahead before the casing collapsed. With the exception of the four collapsed joints the casing was all pulled out of the hole. Two of the collapsed joints were fished out with a trip-spear on wire line; the other two joints were fished out, piece by piece, with bell sockets and trip spear, one with center spear. The pipe had collapsed in the form referred to in the field as a "hog trough."

The material recovered totalled 100 feet in length, according to Mr. Edwards, who says that "patience, care and work for seven or eight days saved the hole and resulted in a producing well being finished at 3250 feet."

Charles McCauley and Ed Hitchcock were the driller and tool pusher, respectively, on the well. They were working under Harold Pardee, North Central Texas superintendent, who has been more recently identified with the operations of the Landreth interests in the Ranger territory.

This pipe had no value except that the well was saved when it was fished out.

Costs on Hazards in Smackover Drilling

The hard rock formation found below the Nacatoch pay level in the Smackover field and the hazards of gas above the flush Marlbrook horizon are making it necessary for drilling contractors to get higher prices for turnkey jobs than they first considered necessary. The "digging" is fairly easy down to 2000 feet.

Before contractors learned of the hard rock underlying the 2100-foot Nacatoch pay it was the common thing for

them to contract a 6-inch turnkey job to the 2400-foot Marlbrook horizon at $12,500. The contract price for an 8-inch well, turnkey job, was generally $15,500.

Both these prices are due to be raised, contractors say, if they are to make any money.

An estimate of the net cost of a Smackover deep pay well is subjoined. It will be noted that no allowance is made for hazard and it should be taken into account also that this is a representative cost to the small operator, who at most is drilling only a few wells. The large company which drills dozens of wells with its own tools, perhaps, would be able to cut down on teaming and other charges because of its more extended scope of operations.

NET COST ESTIMATE OF SMACKOVER WELL

Labor to erect derrick and drill well	$2,850.00
Material, steel derrick, casing, liner, valves, etc.	6,128.77
Miscellaneous, teaming, fuel and rig maintenance	2,295.00
Total	$11,273.77

Adopts Plan to Keep Pipe From Freezing

CASPER, WYO., June 20.—Anyone who can foresee a fishing job and beat it before it arrives has turned quite a trick. That is what G. L. Ferguson, general superintendent of the Marine Oil Co., Casper, Wyo., recently did. He has worked out a method which applies to the particular conditions he finds in drilling new wells and it may be of some value elsewhere where similar trouble is found.

Casing practice in that part of the field where the Marine operates is to set three joints of 12½-inch for conductor: some 2200 feet of 10-inch to hold off cave until the 8¼-inch is set and cemented below the First Wall Creek sand. The final string is 6⅝-inch on the top of the Second Wall Creek sand, the production horizon where the Marine operates.

It is the practice to pull the 10-inch after the 8¼ is set and cemented. Sometimes it doesn't pull. There are in the formations in this field tough "bones" of varying thickness, some only a few inches thick. They are interspersed in softer formations and, there is sharp dip to the formations, these "bones" do not always shear off in drilling. They sometimes result in frozen pipe and in pulling the 10-inch there is always the danger of parting string, leaving much of it in the hole.

Mr. Ferguson figured the thing to do was to make certain the 10-inch would not be frozen. In every well he now drills, the following procedure is followed:

Three joints of 10-inch are made up, with the heaviest he can find as the bottom. Into the top joint he screws a

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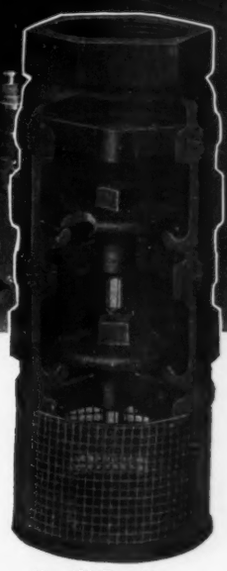

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Field Methods

are described in detail by Messrs. Cox, Dake and Muilenburg in their book entitled FIELD METHODS IN PETROLEUM GEOLOGY.

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casing connection upside down and to the casing connection a pin-to-pin substitute. Set of jars is next in order, attached to the substitutes, above this a sinker bar and forming the top of his string a rope socket—not the swivel type. Then cable to the rope socket and he is ready for business.

He swings all this into the hole and carefully lets down the three joints of pipe. He keeps going as long as the pipe runs easily, but if he hits one of those knots in the formation that might freeze the pipe, out comes the pipe and in goes the underreamer to knock off the barnacle. The idea of the casing connection, jars, etc. is to be ready to jerk the short string of 10-inch out if it shows a tendency to stick.

Thus, every foot of the hole is tested to the point where the 10-inch string is to be landed and when he is finally ready to run the string he knows that it will come out as easily as it went in.

It takes a little time, but Mr. Ferguson figures he has saved quite a lot of money on th several wells he has tested this way.

Formations Settle As Oil Is Removed

What happens in some oil fields after production has been under way for some time is told in an article on the Goose Creek oil field of Texas by H. E. Minor, published in the March-April number of the Bulletin, American Association of Petroleum Geologists. He says.

"Since the active development of Goose Creek in 1916, there has been a marked subsidence of the area lying in the center of the field. During the years 1916 and 1917, the surface of Gaillard Peninsula, as it was then known, was a land area that stood ½ to 2 feet above the mean tide. Material was transported to the wells located upon the peninsula over shell and plank roads. Today, this entire land area lies submerged under possibly 3 feet of water.

"At no place could a subsidence be more clearly noted. In many places, along the north and south limits of the field, miniature faults may be seen plainly, and they may be traced for considerable distances. Recent elevations, compared with those determined by the U. S. Geological Survey of 1916, show the greatest subsidence, of 2.2 to 2.7 feet, to have occurred over the area of greatest production, with the surrounding area gradually resuming its original elevation a short distance beyond the limits of production.

"The explanation offered by the writer for this recent land subsidence is that, due to the enormous flow of gas, oil and water in the wells, a movement or flow of the fluids in the sands caused a readjustment and closer packing of the sand grains. The overlying beds, consisting of comparatively soft clays, shales and sands, gave way and settled to a lower position because of the readjustment of the underlying sands."

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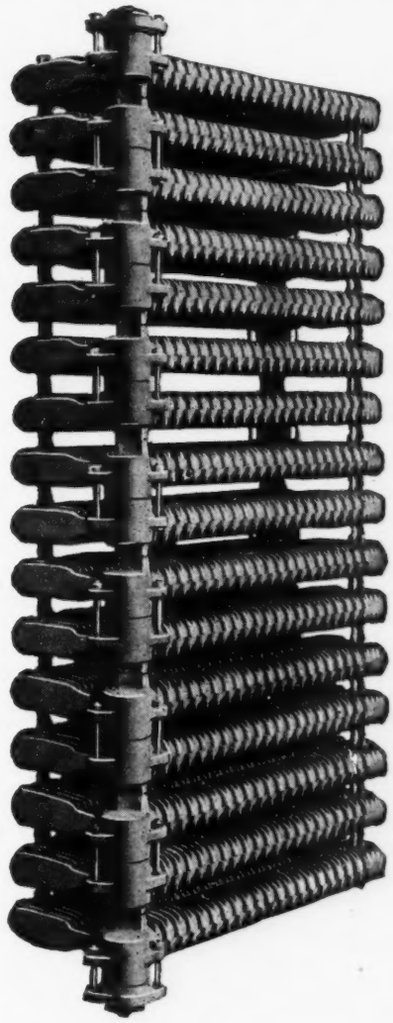

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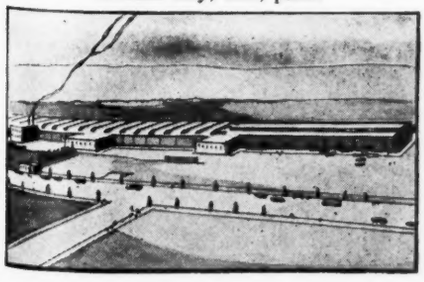

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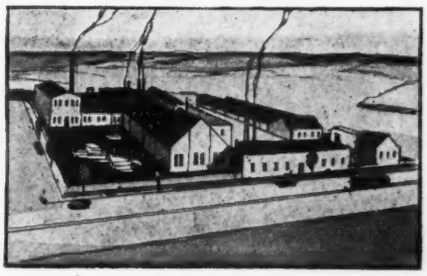
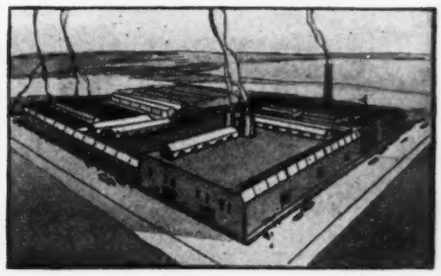


Buffalo, N.Y., Standard plant



Lytton Springs Development Profitable Despite Quick Decline of Wells

By Paul Wagner

N. P. N. STAFF WRITER

HOUSTON, June 20

BETWEEN Williamson county, on the north, and Bexar and Wilson counties, on the south, there extends an area in Texas where additional oil fields may be developed in association with buried volcanic necks reaching upward from unknown depths.

A study of this territory is of peculiar interest at the present time, because of the current development of the Lytton Springs field, near the boundary of Caldwell and Bastrop counties. This field produces from decomposed lava, known as serpentine, and is located approximately 50 miles west of south of a similar development at Thrall, Williamson county, which reached its height in 1915.

Lytton Springs and Thrall are the only fields in the United States to have produced oil from serpentine, into which it has migrated from other sources. One such instance, however, is known in Mexico, where the shallow field produced small quantities of petroleum as long ago as the 1870's. The Furbero field, which is not now exploited, is beyond the Southern district of Mexico to the southward.

Lytton Springs production averaged nearly 119 barrels per well, May 23, last, from a total of 81 producing wells. Thrall production has long since passed out of the petroleum picture, although the field gave up approximately three million barrels before it became history.

Other such pools conceivably may be found in the outcrop areas of the Taylor, Navarro and Lower Eocene beds on the coastward side of the Balcones fault from points approximating Austin on the northeast to Uvalde on the southwest.

Intrusions of volcanic type are known to occur within the area mentioned and it is possible that additional necks of this character are to be found buried below the surface. Wherever such necks are found to be decomposed conditions are favorable for the accumulation of oil originating in other beds and migrating to reservoirs of this type.

Surface structure exists at Lytton Springs, where a very plainly marked fault extends northeast-southwest through the field. The existence of this fault has been known for years, but little attention was paid to it until the development of the Luling field, in Caldwell county, which produces from a faulted structure at the Edwards limestone horizon.

Oil found at the shallow level of the Lytton Springs field was discovered in a well started primarily to test out deeper beds along the fault. The duplication of conditions previously found at Thrall was rather unexpected.

The serpentine appears to be faulted at Lytton Springs, but the presence of the porous material itself seems to be the controlling factor of oil accumulation. Where the serpentine is tight no oil is found; where it is porous the wells reflect the degree of is porosity.

The Taylor marls, in which the serpentine is found, contain oil in more or less quantity throughout their extent from the Red River to the Rio Grande, a distance of more than 600 miles, and the collection of some of this oil in the porous serpentine is the cause of the two fields mentioned reaching commercial importance.

Wells Cheaply Drilled

Although the decline curves of wells and leases show rapid downward plunges, the Lytton Springs field is a profitable development because of quick and relatively inexpensive drilling. A well can be completed under contract for a turnkey job at $6,000, the contractor furnishing everything except the flow tanks. Usually 8 to 10 days are required to complete a well, although there have been a number more quickly drilled.

Lytton Springs Crude High in Light Oil Values

A refinery analysis of a sample of Lytton Springs crude taken from a well on the F. A. Gomillion farm shows A.P.I. gravity of 38.9; b.s. percentage, .2 of 1 per cent; color dark green.

A laboratory analysis of Thrall crude taken from the No. 1 Murphy well is presented for such comparisons as may be possible from the different testing methods pursued.

Eighty one wells completed in the Lytton Springs field from March 12, 1925 to May 23, last, had combined initial productions of 20,586 barrels. They were producing 9566 barrels, May 23, or less than 46.5 per cent of their total maximum yields.

As the discovery well of the field was followed by only one other completion prior to April 9, when the Sun Oil Co. and the Marland-Cranfill partnership both brought in wells, the measure of production declines may be more accurately considered to date from that time.

Including the discovery well, 15 completions were put on production for combined initial flows of 5870 barrels prior to May 1. That means that 66 wells completed in the 23 day period after May 1 had initial productions totalling 14,716 barrels and this much new oil could not stem the decline constantly taking place.

Twenty five of the most recent wells in the field were completed for 5356 bar-

Refinery Analysis from Well on F. A. Gomillion Farm

Atmospheric Distillation Temperature Cut °F.	Volume Charged— Product	Vol. C. C.	Barometer C. C. A. P. I. Grav.	Yield Per Cent
Up to 392	Gasoline	79.0	59.6	26.3
392 to 527	Kerosene	61.0	42.2	20.3
		Flash	182	
Vacuum Distillation @ 40 mm:				
Up to 437	Gas Oil	30.8	35.6	10.3
437 to 527	Light lub. dist.	40.8	32.1	13.6
527 to 572	Medium lub. dist.	16.4	28.9	5.5
A. P. I. Gravity of Residum			20.0	24.0

Laboratory Analysis of Thrall crude from No. 1 Murphy well

Specific gravity at 60°F	0.829—39.1 Be.	
Flash Point	70°F.	
Burning Point	70°F.	
Water	0	
Distillation (Engler method.)		
	Per Cent	Color
Up to 212°F	6.00	None
212 to 302°F	14.00	None
302 to 392°F	11.00	None
392 to 442°F	12.00	Prime White
482 to 572°F	12.20	Prime White
572 to 662°F	14.80	Cream White
	4.80	Extra Pale
Above 662°F	8.80	Lemon Pale
	10.80	Orange Pale
Residue	3.20	Red
	2.40	

rels, combined initial production, in the six days from May 18 to May 23, inclusive. These wells should have been near the producing level of their flush, notwithstanding which they represented at their maximum approximately 56 per cent of the May 23 field production.

Analysis of Declines

Because of the practice of gauging production by leases rather than individual wells, many of which flow into the same tanks with others, it becomes necessary to analyze declines in a general way:

Date	Number Wells	Daily Per Well Average	Total Initial
4-17-25	7	516.4	3,065
4-24-25	10	429.3	4,265
5- 2-25	16	243.7	5,970
5-16-25	51	163.8	14,115
5-23-25	81	118.9	20,586

Comparison With Thrall

The average decline of production in 79 individual wells at Thrall is herewith shown for a 15 months period:

	Per Cent Of Init. Prod.
Initial Production	100%
End of 1 Month	51%
End of 4 Months	17%
End of 9 Months	7%
End of 14 Months	1%

Initial production in barrels per day of 70 wells at Thrall were summed up as follows:

	Number Wells
5000 to 1001 bbls	7
1000 to 201 bbls	15
200 to 41 bbls	22
40 to 9 bbls	19
8 to 1 bbl	7

The following table shows the decline in production, in barrels per day, during a period of 15 months, of 32 Thrall wells drilled on one lease:

Initial Production	Production 6 Mos. After Field Opened	Production 15 Mos. After Field Opened
400	35	2
470	40	2
600	45	1
900	35	8
878	35	2
10	1	1
536	35	3
50	20	2
400	40	10
150	25	3
50	20	2
150	20	1
150	60	10
60	35	2
100	10	1
20	35	10
25	35	2
400	100	1
1500	50	0
900	60	20
100	25	1
150	25	1
100	20	1
10	6	1
0	0	0
60	20	1
0	0	0
50	50	1
35	30	12
40	30	25
40	?	0
400	100	20
398 (Average)	30	5

Messrs. J. A. Udden and H. P. Bybee, who collected the foregoing information on the Thrall field for University of Texas bulletin No. 66, obtained an approximate estimate of the daily production of 138 wells in July, 1916, about 16 months after the field was first opened. This record follows:

Daily Production	Number Wells
Below 6 bbls	96
6 to 10 bbls	12
11 to 25 bbls	22
About 26 bbls	8

From March, 1915, to January 1, 1917, Thrall produced 1,534,212 barrels and still had production at the end of the period of nearly 800 barrels daily. In 1917 Thrall production declined to 176,885 barrels for the year; and in 1918 it dropped to 1000 barrels monthly.

Tabloid Production Record of Lytton Springs Field

Company—Well	Date Comp.	Top Of Serpentine	Total Depth	Initial Prod.	May 23, 1925 Prod.
Mills Bennett (formerly McClanahan et al)					
Brewer 1	3-24-25	1300	1438	100	
Brewer 3	5- 4-25	1208	1383	500	
Brewer 4	5-20-25	1360	1530	75	
Brewer 5	5-18-25	1309	1512	150	
Sub-Total				825	389
C. M. Cope et al					
Beaty 1	5-20-25	1445	1662	15	15
Grayburg Oil Co.					
Gomillion 1	4-28-25	1645	1739	500	
Gomillion 3	5-22-25	1411	1626	200	
Sub-Total				700	692
Gulf Production Co.					
Beaty 1	4-27-25	1202	1450	240	
Beaty 2	4-23-25	1218	1392	550	
Beaty 3	4-23-25	1222	1400	600	
Beaty 5	5-18-25	1250	1740	25	
Beaty 6	5-18-25	1253	1440	15	
Sub-Total				1430	540
Gulf Production Co.					
Brewer 1 (155-a)	5-18-25	1200	1438	100	
Brewer 2	5- 7-25	1292	1819	Dry	
Brewer 3	5-19-25	1140	1305	800	
Sub-Total				900	199
Gulf Production Co.					
Brewer 1 (56-a)	5-13-25	1230	1852	Dry	
Brewer 2	5- 5-25	1190	1512	300	
Brewer 3	5-11-25	1202	1344	350	
Brewer 4	5-17-25	1190	1481	200	
Brewer 7	5-21-25	1250	1400	800	
Sub-Total				1650	277
Gulf Production Co.					
Gomillion 1	5-16-25	1327	1720	75	
Gomillion 2	4-28-25	1312	1495	105	
Gomillion 3	5-14-25	1336	1580	50	
Gomillion 4	5- 9-25	1335	1680	100	
Gomillion 5	5-10-25	1345	1557	200	
Gomillion 6	5-16-25	1336	1566	100	
Sub-Total				630	534
Humble Oil & Refining Co.					
Brewer 1 (50-a)	5-19-25	1335	1628	400	
Brewer 1 (64-a)	5-20-25	1206	1637	100	
Brewer 2	5- 8-25	1217	1414	50	
Brewer 3	5-11-25	1224	1522	75	
Brewer 4	5- 4-25	1235	1651	100	
Brewer 5	5- 4-25	1292	1571	200	
Brewer 6	5-14-25	1359	1550	100	
Brewer 7	5-20-25	1327	1413	75	
Brewer 8	5-12-25	1222	1464	350	
Brewer 9	5-14-25	1215	1388	100	
Brewer 10	5-19-25	1237	1451	75	
Brewer 12	5-12-25	1220	1440	150	
Brewer 13	5-19-25	1190	1517	640	
Brewer 14	5-18-25	1223	1482	100	
Brewer 15	5-17-25	1290	1574	100	
Sub-Total				2615	1064

Company—Well	Date Comp.	Top Of Serpentine	Total Depth	Initial Prod.	May 23, 1925 Prod.
Marland & Cranfill					
Gomillion 1	4- 9-25	1329	1421	650	
Gomillion 2	5-14-25	1360	1770	100	
Gomillion 3	5-12-25	1319	1670	100	
Gomillion 4	5-12-25	1344	1771	100	
Gomillion 5	5- 5-25	1333	1742	800	
Gomillion 6	5-21-25	1320	1640	100	
Gomillion 7	5-21-25	1320	1620	100	
Gomillion 10	5-13-25	1333	1650	200	
Sub-Total				2150	1470
Marland & Lucey					
Palmer 1	4-29-25	1313	1461	200	
Palmer 4	5-20-25	1313	1458	150	
Sub-Total				350	190
Mid-Kansas Oil & Gas Co.					
Brewer 1	4-16-25	1182	1257	50	
Brewer 2	5-19-25	1150	1289	1400	
Brewer 4	4-28-25	1184	1331	200	
Brewer 5	5-12-25	1221	1353	60	
Brewer 6	5- 9-25	1210	1370	10	
Brewer 7	5-20-25	1205	1394	100	
Sub-Total				1820	610
Quaker Oil Co.					
Palmer 1	5- 2-25	1208	1480	100	
Palmer 2	5-19-25	1309	1409	100	
Palmer 3	5-22-25	1276	1335	100	
Sub-Total				300	115
Sun Oil Co.					
Gomillion 1	4- 9-25	1175	1252	450	
Gomillion 2	4- 9-25	1208	1420	1500	
Gomillion 3	4-30-25	1180	1451	600	
Gomillion 4	5- 7-25	1223	1555	100	
Gomillion 5	5- 8-25	1208	1558	600	
Gomillion 6	5-14-25	1180	1500	200	
Gomillion 7	5-14-25	1168	1578	1500	
Gomillion 8	5-13-25	1270	1489	500	
Gomillion 9	5-14-25	1156	1567	75	
Gomillion 10	5-19-25	1297	1755	100	
Gomillion 11	5-15-25	1186	1593	150	
Gomillion 12	5-14-25	1241	1596	100	
Gomillion 13	5-18-25	1157	1708	100	
Gomillion 14	5- 6-25	1161	1481	250	
Gomillion 15	5-21-25	1194	1398	50	
Gomillion 16	5-17-25	1200	1700	75	
Gomillion 17	5-20-25	1306	1658	100	
Sub-Total				6450	2520
Witherspoon Oil Co.					
Brewer 1	3-12-25*	1252	1409	75	
Brewer 2	4-24-25	1160	1350	50	
Brewer 3	5- 4-25	1142	1366	100	
Brewer 4	5- 8-25	1169	1400	200	
Brewer 5	5-14-25	1140	1497	200	
Brewer 6	5-20-25	1138	1366	126	
Sub-Total				751	960

*—"Discovery" well drilled by Storey & LeFevre and sold to Witherspoon.

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No Depletion on Storage Oil of Jan. 1, 1918

WASHINGTON, June 23.—Oil in storage on Jan. 1, 1918, is not subject to the depletion allowance that became effective on that day. It was personal property subject to income tax based on fair market value at the time of storage and of sale. That is the substance of a recommended ruling on the subject made by the solicitor for the Internal Revenue Bureau. The ruling is as follows:

"This office has had under consideration the protest of the M Company against the action of the Income Tax Unit relative to the depletion allowance at the discovery rate in 1918 on oil produced largely from oil properties on and 1917 and sold in 1918.

"During the years 1914, 1915, 1916, and 1917 the taxpayer was making discoveries and producing oil on the discovery areas in the —— field, State of R. During the years 1916 and 1917, owing to the low price of oil and poor market facilities, the taxpayer produced and placed in storage in round number "y" barrels of crude oil. This oil was produced largely from oil properties on which discovery revaluations have been allowed. Early in 1918 this oil was sold and the income received from the sale thereof is reported as income in that year.

"The allowance for depletion based upon discovery value was not permitted by statute until the passage of the Revenue Act of 1918, which became effective as of January 1, 1918. Depletion relates to the reduction in the capital value of a natural deposit of mineral. Consequently the discovery provision for depletion purposes under the Revenue Act of 1918 could only apply in respect to the oil which was in the ground on January 1, 1918, although the value upon which depletion is based is measured by the fair market value determined within 30 days after the date of discovery.

"Oil which had been produced prior to January 1, 1918, and was in storage on the surface was personal property on the date when the statute granting discovery value for depletion purposes became effective. Consequently the taxpayer's oil in storage December 31, 1917, was not subject to depletion, since depletion relates to mineral in the ground on the effective date of the Revenue Act in question. If, at March 1, 1913, a taxpayer had owned oil wells and oil property which were subject to a March 1, 1913, value and at the same time had oil stored in tanks, the stored oil would not be subject to depletion under any of the Revenue Acts but would be valued as personal property at its then fair market value just as in the case of any other form of property. Depletion would only apply to the natural deposit of oil and would be realized when oil was produced and sold.

"Similarly, at January 1, 1918, the oil in storage had been converted prior to that date from a natural deposit to personal property and since, at the time of such conversion, the taxpayer had no right to a deduction on account of depletion based on the discovery value, it could not acquire such right by the passage of an Act relating to a natural deposit when the taxpayer had parted with its natural deposit. If, at the time of removal of oil from a well, there existed a right to depletion on the value of the oil such a right is not lost by placing the oil in storage, although the deduction from income on account of depletion is not allowed until the oil is sold. For example, oil produced in 1918 and stored but not sold in that year would not lose the right to a depletion deduction if sold in 1919. It is therefore the opinion of this office that no deduction for depletion based upon a discovery value may be allowed upon oil in storage on the surface at December 31, 1917."

Clears Gulf of Charges of Misshipping

WASHINGTON, June 20.—The Supreme Court of the United States has destroyed the accusation of accepting a rebate from the railroads laid against the Gulf Refining Co., by affirming the judgment of the circuit court of appeals for the eighth circuit. The last mentioned court had reversed the federal court for the eastern district of Oklahoma, which had convicted the Gulf on 99 counts. Each count carried a minimum penalty of $1,000 or maximum of $25,000 fine.

The accusation was that the Gulf had received concessions and discriminations in rates on gasoline shipped by the Gypsy Oil Co., between Dec. 2, 1916 and March 12, 1919, from Keifer, Drumright and Jenks, Oklahoma to the Gulf's refinery at Port Arthur in violation of the Elkins anti-rebate law.

The product shipped was billed as "unrefined naphtha." The government claimed it was gasoline and that, instead of paying 33 cents per cwt., the rate on gasoline, it was shipped at a rate of 19.5 cents. Justice Butler said that, if the property in question could have been described as gasoline or as unrefined naphtha, the lower rate was applicable. He said the burden was on the United States to prove that the property shipped was gasoline and was not unrefined naphtha, but that the government had not done so. He said that it certainly was not what was commercially and familiarly known as gasoline, but was an unfinished product taken to Port Arthur to be used to make gasoline, even if it was otherwise known as beaten or weatherworn casinghead gasoline. The evidence, he said, was not sufficient to sustain a finding that the shipments in question were not unrefined naphtha, as described.

This affirmance of the reversal of the conviction of the Gulf company, will, it is believed, mean the quashing of the indictments against the traffic manager of the Gulf.

J. A. Hull Co. Offers Stock to Public

Staff Special

TULSA, June 20.—The J. A. Hull Co. here has announced an issue of 10 per cent preferred stock totaling $1,500,000. The issue is being sold direct by the company to the public. The stock is preferred as to both dividends and assets with a cumulative provision.

Proceeds from the sale of the stock are to be used for development of properties and the retirement of short term bank loans. The company reports assets of nearly $4,000,000 consisting of leaseholds and properties which are producing around 2000 barrels of oil per day. Current earnings are reported at approximately $100,000 per month.

J. A. Hull, president of the company, is a director in the Exchange National Bank here and was one of the organizers of the Bessemer Gas Engine Co. Other officers are Ralph C. Riley, vice president; O. J. McCann, secretary; and P. F. Cole, treasurer. In addition to the officers L. H. White and DeWitt Hull are directors.

Woodman on Cosden Company Board

NEW YORK, June 20.—Election of A. C. Woodman, chairman of the board, Crown Central Oil Corp., to the board of directors of the Mid-Continent Petroleum Corp., formerly Cosden & Co., was a personal business matter and had no connection with the Crown Central, Mr. Woodman said today. It had been suggested that the Crown Central might become export agent for the Mid-Continent company.

Frank L. Moore, who also was added to the Mid-Continent board, is a producer in the Mid-Continent field with headquarters in Tulsa.

Independent to Move

TULSA, June 20.—The Independent Oil & Gas Co. has purchased a building site at Seventh and Cheyenne here across from the Chestnut & Smith building. The company plans to erect its own office building on the site in the near future.

It was announced recently that the Independent will move its executive offices to Tulsa about the first of July. Production offices will remain in Okmulgee.

TOPEKA, KAN.—The Independent Lubricating Co. will install additional storage tanks, mixers and painting equipment within the next 60 days, according to E. W. Fawcett, manager.

It's a Dull Week in Okla. if No New Wilcox Sand Pools are Reported

By A. F. Hinton
N. P. N. STAFF WRITER

TULSA, June 20

IT has reached the point in Oklahoma where we count that week lost that does not bring to light the discovery of another Wilcox sand pool. It has gotten so, in fact, that we are considering having a form made up for use in this weekly story, in which we can fill in name of company, section, township and range, depth and initial production, and our story will be written. If the thing keeps up much longer, this department will be known as "Wilcox Sand Developments" rather than Oklahoma production.

To keep up with the Wilcox sand discoveries as they come in, a writer must be constantly on the job for if he overlooks one they start piling up on him and before he knows it there are several needing attention. Thy got the jump on the writer the past week as he was absent trying to keep up with the convention of the National Association of Oil Scouts of America a task well calculated to drive all thoughts of the Wilcox sand from anybody's mind.

The latest Wilcox sand discovery we have heard of is that of the Deep Rock Oil & Refining Co. (subsidiary of the Shaffer Oil & Refining Co. in the SW NE of 23-18-3, Payne county, and ten miles or more from production. This well, known as No. 1 Goodno, or Good-enough (either way is good enough) is flowing 50 barrels an hour, in sand from 4273 to 4275 feet. The oil is of 43.5 degrees gravity. Whether this is the Wilcox sand or one of the "pays" below it has not been clearly determined, but the well is supposed to have had the top of the Mississippi lime at around 4205 feet, and had 20 million cubic feet of gas from 4246 to 4250 feet. Its actual output for the 22 hours after finding the oil pay was 1035 barrels. When pipe line facilities have been provided and additional tankage completed, it will be drilled farther into the sand, and probably will increase its production considerably.

The well is 11 miles west and three miles north of Cushing, and is just a mile or two south and west of the town of Mahan. Pending completion of a permanent line to the well from the Shaffer refinery at Cushing, the company has laid a temporary line to Mahan and is handling the oil out of there through a loading rack. The location is about in the center of a block of 2000 acres owned by the Shaffer interests, covering a structure outlined by core-drilling.

The Deep Rock Co. has made two locations and is building rigs for its No. 1 Shannon, in NEc SW of 23-18-3, a diagonal southwest offset to the Good-enough well, and for its No. 2 Derry, in the NWc SE of 23, a direct south offset to the well. The company recently completed No. 1 on the Derry lease with initial flow of 18 million cubic feet of gas.

Skelly Oil Co. gets the credit for the Wilcox sand discovery immediately preceding that of the Deep Rock, unless there were some in between that we haven't heard of. The Skelly well is known as the No. 1 Ford, but it is a much larger well than its name would indicate. It is located in the NEc of 7-15-6, Lincoln county, about five miles north and west of the Stroud field. It had five feet of sandy lime from 4030 to 4035, and at the latter depth started flowing oil, so that is called the top of the Wilcox sand. It made 694 barrels of 43 gravity oil the first 24 hours after getting into this pay, but after having been drilled down to 4046 feet, is now makin around 1400 barrels. Its best day was June 14, when it was 4640 feet deep, and made 1586 barrels in 24 hours. Apparently the big pay was all in the first five feet after the first oil showing.

This is a very important discovery, as it means the opening up of a new Wilcox sand pool, similar to that of Stroud, and will be followed by a great deal of drilling. Skelly Oil Co. is building rig for its No. 2 Ford, in the NWc NE NE of 7-15-6, a quarter-mile west of the discovery well, and has made location for No. 3, in the southeast corner of the same forty acres. Mid-Continental Petroleum Corp. (Cosden) has made location for its No. 1 Earp, in the NWc of 8-15-6, a direct east offset to the Skelly well. Carter Oil Co. is building a rig for a test in the SEc of 6-15-6, for a north offset to the discovery well.

The diagonal northeast offset will be drilled by the Independent Oil & Gas Co., a rig having been built for its No. 1 Selig, in the SWc of 5-15-6. This company also will deepen its No. 1 Earp, in the SEc NE SE of 6, which was completed some time ago in the Dutcher sand at 3770 feet. The well has been drilled to 3860 feet and is now underreaming the pipe to bottom of hole. It should be the next well in the new field.

Big Wells at Davenport

In the Davenport field, Lincoln county, another development of recent months, production has been climbing steadily of late, and several wells of large initial production have been brought in during the past few weeks. The field now has 20 wells producing 6064 barrels daily, an increase in output of about 1900 barrels over last week. Among recent wells there, the Magnolia Petroleum Co. No. 1 Sukovaty, in the NWc SW NW of 2-14-5, is in the sand from 3407 to 3415 feet, and is flowing about 80 barrels of 47.7 gravity oil an hour. Twin State Oil Co. drilled in an offset to this well, in the same section, which is making 1165 barrels daily. The Magnolia well was a 10-million-foot gasser in the sand from 3345 to 3385 feet, but was deepened to the oil pay after the Twin State well came in.

(Continued on top of next page)

Drilling Operations in Oklahoma, Kansas and N. Texas

	June 20 Week Ending					June 13				
	Loc.	Rigs	Drg.	S.D.	Total	Loc.	Rigs	Drg.	S.D.	Total
OKLAHOMA										
Burbank	...	5	36	...	41	...	5	36	...	41
Other Osage	15	12	95	6	128	15	12	95	6	128
Bristow-Cushing	13	26	121	35	195	17	23	118	34	192
North Oklahoma	17	43	149	53	262	17	38	134	53	242
South Oklahoma	7	21	130	65	223	7	17	37	58	219
Muskogee	...	18	38	14	70	...	16	35	16	67
Okmulgee-Bristow	2	52	125	34	213	4	46	151	31	232
Tonkawa	...	4	33	12	49	...	3	35	12	50
Wewoka-Cromwell	14	23	224	20	281	15	25	222	23	285
Total Oklahoma	68	204	951	239	1462	75	185	963	233	1456
KANSAS	82	86	271	120	559	88	98	263	126	575
NORTH TEXAS										
Eastland County	...	1	25	6	32	...	...	24	6	30
Stephens County	...	21	49	23	93	...	25	48	22	95
Texas Panhandle	...	14	27	13	54	...	16	28	13	57
Mexia District	...	17	18	3	38	...	23	14	2	39
E. Tex. Wildcats	...	7	10	10	27	...	7	14	9	30
W. Tex. Wildcats	...	22	105	56	183	...	25	111	61	197
Wichita Falls	...	62	158	46	266	...	71	157	41	269
Total N. Texas	...	144	392	157	693	...	167	396	154	717
GRAND TOTAL	150	434	1614	516	2714	163	450	1622	513	2748

Davenport production is divided as follows:

Company.	No. Wells	Daily Aver. Product'n
Magnolia Pet. Co.	8	2294
Prairie O. & G. Co.	6	1650
Twin State Oil Co.	1	1165
Selby-Southwestern	2	460
Texas Co.	1	370
Sinclair O. & G. Co.	1	85
Amerada Pet. Corp.	1	40
Total	20	6,064

Braman Well Increasing

Continued agitation of the Herbert Oil Co. well on the Braman townsite, Kay county, has resulted in a steady increase in production, so that at last reports it was making 1370 barrels daily. It is about four feet in the Stalnaker sand topped at 2366 feet. Braman is in the throes of a regular, old-fashioned boom, with 32 wells going down or making preparations on the townsite or immediately adjoining it. There are 10 wells actually drilling inside the townsite, and eight just outside. Other operations in the town and vicinity include four rigging up, four rigs standing, four rigs being built, two moving

Completions in Oklahoma and Kansas, Week Ended June 20

OKLAHOMA

Carter County

Company	Well No.	Location	Depth	Initial Production
Humble	3	C SW NE NE 22-2-3W	T.D.2576	1200
Twin State	5	C NE NE SW 23-2-3W	2118–2840	75
Magnolia	6	C NE NW SW 24-2-3W	2108–2135	240
Franklin et al.	2-A	C NE NE NE 25-2-3W	2173–2619	250
Coline	2	C SE NW SE 8-3-2W	2412–2454	65
Amerada	13	SWc NW SE NE 28-5-1E	1021–1035	205
Amerada	7	SWc NE SE 28-5-1E	1147–1163	180
Westheimer	4	SWc NW NE NW 28-8S-1E	1181–1190	60

Creek County

Company	Well No.	Location	Depth	Initial Production
Atlantic	3	CSL SW SE 14-17-8E	2713–2726 OWD	45 2M
T. P. C. & O.	2	CWL NE SE 6-16-9E	2712–2733	200
Skelly	4	SWc NW SE 29-15-10E	3282–3293	100
Kistler et al.	3	SWc NW 21-14-10E	3349–3359	60
Texas	2	NWc SW 18-17-10E	T.D.2790	Dry
Phillips	4	NWc SW SW 4-15-9E	T.D.3050	Dry
Texas	1	NEc SE SE 5-15-9E	T.D.2970	Dry
Phillips	1	SEc NE NW 19-14-10E	T.D.3573	Dry

Garfield County—Garber

Company	Well No.	Location	Depth	Initial Production
Magnolia	2	CWL SE SE SE 11-22-4W	2270–2280 OWD	5
Cosden-Marland	46	NEc NW NE SE 13-22-4W	2321–2359	300
Sinclair	20	C SE NE NE 25-22-4W	2012–2030	65
Sinclair	13	SWc SE NW 18-22-3W	2165–2173 OWD	10

Grady County

Company	Well No.	Location	Depth	Initial Production
Noble et al.	3	C NE NE NW 35-5-8W	2070–2450	42M
Magnolia	2	C SE NW 26-4-8W	1431–1435	15M

Hughes County—Papoose

Company	Well No.	Location	Depth	Initial Production
Independent	8	C SW SW NE 2-9-9E	3342–3348	20
Superior et al.	1	SWc SW SE 20-9-10E	2484–2500	5M
Turman	1	SWc 15-9-9E	T.D.3400	Dry

Kay County

Company	Well No.	Location	Depth	Initial Production
Mutual	1	C SE NE NW 1-26-2W	2643–2653	250

Kay County—Tonkawa

Company	Well No.	Location	Depth	Initial Production
Texas Co.	9	NWc SE SW 27-25-1W	2162–4194	998
Comar	21	C SE NW NW 34-25-1W	4175–4195	1409

Kay County—Braman

Company	Well No.	Location	Depth	Initial Production
Comar	4	NEc SE NW 21-29-1W	2054–2075	106

Kay County—Hubbard

Company	Well No.	Location	Depth	Initial Production
Prairie	6	C SE NW SE 1-26-2W	2515–2532	90
Prairie	1	C SW SW SE 33-27-1E	T.D.1430	Dry

Muskogee County

Company	Well No.	Location	Depth	Initial Production
Fike-Klatt	1	NWc SE SW 24-12-19E	T.D.2000	Dry

Okfuskee County

Company	Well No.	Location	Depth	Initial Production
Josey	3	SEc NW NW 33-12-11E	2900–2915	320
Pratt-Burton	1	NWc NW SE 9-12-10E	T.D.3566	Dry
Anglo-Tex	1	NWc NE NW 4-11-11E	T.D.3730 OWD	Dry

Okfuskee County—Cromwell

Company	Well No.	Location	Depth	Initial Production
Roxana	1	C SW SW SW 2-10-8	T.D.3615	Dry
Mid-Cont	1	C NW NW NW 11-10-8	T.D.1345	Dry

Okfuskee County—Papoose

Company	Well No.	Location	Depth	Initial Production
Slick	1	C SW SW NE 35-10-9E	T.D.3414 OWD	Dry

Okmulgee County

Company	Well No.	Location	Depth	Initial Production
Wilcox et al.	1	NEc SW SW 1-16-11E	2290–2297	350
Swindler et al.	1	SWc NE 25-13-11E	2432–2449	498
Haas	1	NEc NW 15-14-14E	1822–1823 OWD	2M
Swindler	1	SWc NE SE 20-15-14	2207–2217 OWD	200
Henry et al.	1	SEc SW SE 30-14-12E	T.D.2895	Dry
Monosett	2	NEc NW NW 29-13-13E	T.D.1490	Dry

Osage County

Company	Well No.	Location	Depth	Initial Production
Gled	1	NW SW NW NW 11-20-12E	1525–1545	52M
I. T. I. O.	3	C NE NW NW 1-21-8E	2325–2350	40
Skelly	3	CWL SW 11-21-9E	2257–2280	80
Breene et al.	10	SW SE SW NW 5-21-11E	2013–2021	100
Sterling	4	SEc 16-21-12E	1945–1960	40
Grimes	6	SE SW 31-21-12	2320–2373	300
Red Bank	7	SE NE NW NW 29-23-8E	2780–2783	1680
Peters	14	NE SW NE SW 4-23-9E	2112–2160	30
Test Log	3	NE SE 16-24-8E	482– 489	10
Foster et al.	47	NW NE NW SE 23-24-9E	2097–2149	30
Continental	4	SW SE SW 29-24-9E	2138–2190	52M
Titus et al.	6	CWL E½ W½ NE 12-24-11E	1635–1755	7
Friedman et al.	4	NE SE NE NW 12-24-11E	1660–1784	20
Olean	4	SW NE NW SE 19-25-9E	2308–2320	15
Plymouth	2	NE NW NE SW 33-25-11E	1757–1855	30
Howard et al.	6	C SE NE SE 28-28-11E	984–1038	10
Okla. Eastern	1	C SE NW SE 18-20-12E	T.D.2357	Dry
Devonian	1	C SE SW 2-21-10E	T.D.2530	Dry
Devonian	1	CSL NW 14-21-10E	T.D.2520	Dry
Selby et al.	9	NE SE NE NW 16-21-12E	T.D.2031	Dry
Continental	1	CNL SW 10-22-10E	T.D.2309	Dry
T. K. Smith	1	C NE 16-22-12E	T.D.1858	Dry
Texas	9	C NW NE NE 29-25-8E	T.D.2698	Dry
Markham et al.	1	SW NW NE SE 23-21-8E	T.D.2904	Dry

Osage County—Burbank

Company	Well No.	Location	Depth	Initial Production
Phillips	1	SW NW 12-27-5E	2960–3023	100
Skelly-Phillips	1	SE NE SE SW 22-27-5	2992–3005	25
Prairie	12	C SE SW SE 12-27-5E	2962–3024	200

Pawnee County

Company	Well No.	Location	Depth	Initial Production
Southwestern	15	SEc SW NW 24-20N-8E	2745–2748	900

Payne County

Company	Well No.	Location	Depth	Initial Production
Josey	4	SWc 36-19-5E	3480–3502 OWD	250

Seminole County—Cromwell

Company	Well No.	Location	Depth	Initial Production
Carter	15	C SE NE NW 3-10-8	3371–3421	360
Roxana	4	C SE NE SW 3-10-8	3337–3486	50
Gypsy-Laurel	7	C SW SW NE 4-10-8	3383–3430	35
Cosden-W. Phil.	7	C SE NW SW 33-11-8	3422–3471	500
Cosden-W. Phil.	8	C SW NE SW 33-11-8	3380–3470	400
Sinclair-Houston	2	C SW NW NE 33-11-8	3384–3427	1805
Prairie	3	C NW SW NE 3-10-8	3385–3428	204

Seminole—Wewoka

Company	Well No.	Location	Depth	Initial Production
Ramsey	2	C NW NW NE 36-8-7E	3076–3088	25
Ramsey	3	C SW SE SE 31-8-8E	3238–3248	1476
P. & R. Corp.	8	C SW SW SE 31-8-8E	3248–3282	2850
Dixie	3	C NW NW NE 6-7-8E	3210–3235	2829

Stephens County

Company	Well No.	Location	Depth	Initial Production
Magnolia	1	NEc SE NW 26-1N-9W	2200–2218	7M
Priddy	1-A	NEc SE 26-1-9W	2281–2285	100
Pierce-Brown	2	C N½ SE 27-1-8W	T.D.1618 OWD	1M
Magnolia	1	NEc NW SE 26-1-9W	2068–2078	4M
Magnolia	1	NEc NE NE 14-2-8W	1768–1775	30

Tulsa County

Company	Well No.	Location	Depth	Initial Production
Holmes	1	NEc SW NE 22-19-10E	1919–1945	100
Riverland	2	CSL SE SE 27-19-11E	2256–2276	600
Thompson-Black	1	NWc NE SW 29-19-12E	2720–2088	50
Cunningham et al.	1	NWc 7-18-13E	1420–1427	1½M
Ora Upp	5	CNL SW SE 9-18-13E	1230–1269	10
Detrick et al.	1	SEc SW SE 5-16-12E	2018–2124	170
Wood Synd.	1-A	SEc SW 36-19-11E	T.D.2248	Dry
Day	2	SEc NW 24-19-14E	T.D.1325	Dry

Wagoner County

Company	Well No.	Location	Depth	Initial Production
Knox-Shouse	5	NEc NW NW 26-18-16E	443– 455	10
Towner	4	SWc SE NE SW 21-18-16E	T.D. 725	Dry
Wheeler	1	SEc NE NW SW 21-18-16E	T.D. 701	Dry

KANSAS

Butler County

Company	Well No.	Location	Depth	Initial Production
Potwin	2	CWL SE 31-24-4E	T.D.2756	Dry

Chase County

Company	Well No.	Location	Depth	Initial Production
Selby	1	SEc SW SE 35-22-9E	2414–2439	8M

Cowley County—Rainbow Bend

Company	Well No.	Location	Depth	Initial Production
W. Phil-Marland	6	NEc SW SE 20-33-3E	3213–3257	1100

Cowley County

Company	Well No.	Location	Depth	Initial Production
Day-Bunnell	1	NEc NW SE 31-32-4E	T.D.3580	Dry

Greenwood County

Company	Well No.	Location	Depth	Initial Production
Mid-Kansas	4	NEc NW SE 30-22-10E	T.D.2557	Dry
Rhodes et al.	1	NWc 27-24-8E	T.D.2556	Dry
Polhamus et al.	2	SWc SE SE 27-24-9E	T.D.2310	Dry
Selby	1	NWc SE 11-26-9E	T.D.2260	Dry
Empire	1	SEc 10-22-11E	1804–1830	35
National	9	SWc SE NW NW 27-22-11E	1926–1940	30
Empire	2	NWc SW NE 32-22-11E	1927–1973	285
Murphy et al.	3	SEc SW SW 2-23-9E	2340–2382	300
Greenland	1-B	SEc NW NE 2-23-9E	2437–2467	200
Greenland	6	SEc NW SE 10-23-9E	2318–2361	175
Skelly-Emerald	4	SEc SW SW 10-23-9E	2338–2391	125
Greenland	2	SWc NE NE 16-23-9E	2450–2500	100
Theta	8	NWc SW SE 10-23-13E	1788–1818	5
Roth-Mission	1	SEc NE SW NE 1-24-9E	2271–2355	60
Rhodes-Abell	2	SEc SW SE NE 16-24-13E	1630–1643	40

Montgomery County

Company	Well No.	Location	Depth	Initial Production
Orbin et al.	1	NEc SE SE 20-31-15E	T.D.1676	Dry
Hazlett et al.	1	NWc SW 1-31-16E	T.D.1410	Dry
Galbreath	1	NEc NW 13-32-14E	T.D.1740	Dry
Steinberger	1	SWc 24-33-13E	T.D.1652	Dry
Venniman et al.	1	C SW NW 25-33-14E	T.D.1740	Dry
Cross	2	SWc NE 12-33-16E	T.D.1312	Dry
Coffeyville	1	NEc NW SW 3-33-17E	T.D.1209	Dry
Stryker et al.	1	NEc NW NW 6-33-17E	T.D.1472	Dry

Russell County

Company	Well No.	Location	Depth	Initial Production
Valerius	6	SWc NW NE SW 8-12-15W	2933–2944	275
Streeter et al.	3	SEc NW SW 8-12-15W	2932–2940	250

Sedgwick County

Company	Well No.	Location	Depth	Initial Production
Curtiss-Frost	1	C NW 14-29-2W	T.D.3950	Dry

in tools, two material on ground and 25 locations made and slush pits dug.

Apparently the orgy of drilling is to result immediately in considerable litigation over townsite leases, due to defective titles, as leases were taken in the rush without waiting to clear these up. Some of the lots have been allowed to revert on account of non-payment of taxes in the past, when the town was not so busy and booming as it is now, and some of these former owners are putting in claims, now that the property has become valuable. Some trouble may be experienced also on account of the ordinance recently passed forbidding the drilling of more that one well on each block. Under the ordinance, any group of property owners in the block could lease for the drilling of the one well in the block, the property owners in the block to participate in the royalty. In several cases, however, two groups on one block have each leased for a well. each insisting on its right to have its well drilled, while the ordinance says only one well may be drilled on the block. About five miles to the south of the Braman townsite pool, Simms Oil Co. No. 1 School Land, in the NEc NE SW of 33-28-1W, was a failure with a hole full of water in the Stalnaker sand at 2345 feet, and probably will be drilled on down for a Wilcox test.

Including the townsite well, the Braman field has 19 wells making 4510 barrels daily, divided by companies as follows:—

Locn.	Company	Farm	No. Wells	Prod.
21-29-1W	Comar	Duncan	4	831
21-29-1W	Comar	McCormick	5	602
21-29-1W	Comar	Harvell	3	649
21-29-1W	Comar	Priboth	3	918
28-29-1W	Comar	Murphy	1	191
22-29-1W	White Eagle	LeMar	1	64
22-29-1W	Gypsy	Frost	1	18
5-28-1W	Herbert	Townsite	1	1,237
Total			19	4,510

In the Garber field, Garfield county, Sinclair Oil & Gas Co. apparently has a failure in its No. 1 Burns, in the NE SE of 30-22-3W, which was an old well deepened from 3500 feet after the Belveal No. 25 discovered the Wilcox sand. The Burns wells was reported to be showing but little difference in structural elevation from the Belveal well, and has been drilled to 4430 feet with nothing showing. The Belveal well got the Wilcox at 4377 feet.

In the Yeager field, Hughes county, where the Dixie Oil Co. has had a lone well for the past two months, the Prairie Oil & Gas Co. has drilled its No. 1 Bruner, in the NWc of 20-8-10, down to 3550 feet with nothing showing. The Dixie well got the pay at 3340 feet. Dixie Oil Co. No. 1 Alexander, in the NEc SW SE of 18-8-10, is below 3355 feet, also with nothing showing, while the Independent Oil & Gas Co. No. 1 Morrison, in the SWc SE NE of 18, is down to 3310 feet and fighting a cavey hole. Yeager prospects do not look any too bright at the moment.

In Oklahoma, during the week just closed, 100 wells were completed, of

Completions in North and Central Texas, Week Ended June 20

Brown County

Company	Well No. Farm	Location—Survey	Depth	Init. Prod.
Conway et al	5-Newton	Miller	1279–1290	400
Gillet et al	4-Prater	Travis	1301–1320	15
Rhodes-Hyer	6-Prater	Travis	1302–1316	50
Canyon	3-Ellisberry	Williams	1430–1440	15
Root et al	5-Newton	Miller	T. D. 1330	Dry
Moore et al	1-Chambers	S. A. M. G.	T. D. 2784	Dry
Ward et al	1-Wyndham	Sweeney	T. D. 2600	Dry

Eastland County

Westheimer et al	9-Hamilton	T. & N. O. 3	T. D. 3646	Dry

Freestone County

Humble	8-Manning	McNulty	T. D. 2986	183

Kaufman County

Lyle et al	1-Messingill	Walker	T. D. 3011	Dry

Mitchell County

McKinney et al	1-Marsden	Slivin	T. D. 513	Dry
Owens-Burkett	1-Chestnut	T. P. 39	T. D. 3840	4M

Navarro County

Humble	13-A Ramsey	Smith	1574–1634	20
Humble	27-B Ramsey	Smith	1522–1545	26
Humble	14-Kent	Smith	1581–1627	32

Shackleford County

Company	Well No. Farm	Location—Survey	Depth	Init. Prod.
Knight et al	2-Moberly	T. P. 12	991–1085	80
Hope	2-Reynolds	T. P. 24	1060–1062	20

Stephens County

Carter et al	3-Langford	T. N. O. 1	3542–3556	3800
McLester	1-Prichard	T. N. O. 2	3541–3542	2700
Simms	5-Decker	T. P. 28	2081–2124	3
Edison et al	2-Crowley	T. P. 32	1824–1874	40
Texas Consol	6-Martin	T. E. & L. 1041	3982–3984	360
Sun	5-Stoker	T. P. 6	3260–3261	144
T. P. C. O	4-Pierce	T. P. 82	1550–1559	4M

Young County

Moore et al	1-Thetford	Barnett	3680–3694	312 & 3M
Shaw-Rathke	2-Cheeves	Akles	1008–1012	100
Murchinson-Fain	3-Campbell	T. E. & L. 236	990–991	50
Murchinson-Fain	4-Campbell	T. E. & L. 236	965–977	100
Gulf	1-Swaine	T. E. & L. 161	1019–1020	81
Shaw-Rathke	1-Cheeves	Akels	1016–1021	35
Panhandle	7-Gambril	B. B. B. & C. 1	T. D. 1336	Dry
Murch.-Fain	4-Campbell	T. E. & L. 236	T. D. 1200	Dry
Roamer	1-Dunigan	T. E. & L. 170	T. D. 1028	Dry
F. H. & E	3-Groves	T. E. & L. 161	T. D. 1066	Dry
Wolff	1-Teague	T. E. & L. 1464	T. D. 1108	Dry
Richardson	1-Johnson	Sargent	T. D. 1201	Dry

Completions in North Louisiana and Arkansas, Week Ended June 18

LOUISIANA

Cotton Valley

Company	Well	Location	Depth	Yield
Fortuna Oil Co	Nickerson No. 1	33–23–10	3340	Dry
La. Oil Refining Corp	S. Jackson No. 1	27–21–10	2545	150
Ohio Oil Co	Cox No. 3	15–21–10	2555	50
Ohio Oil Co	Gray No. 11	27–21–10	2535	55

Caddo Parish

Dixie Oil Co. (Standard of Ind.)	State No. 5	24–21–15	1640	15
Lewis Oil Corp	C. M. L. Co. No. 7	24–22–15	1075	15

Bossier Parish—Bellevue

G. W. Weatherbee	Fee F-8	23–19–11	390	2m. gas

Sabine Parish

L. M. Emlet	Bowman-Hicks Lbr. Co. No. 4	8– 7–12	1835	junked abd.

TEXAS

Waskom—Harrison County

Anderson et al	Downs No. 1 J. Adams HRS		1950	12m. gas

ARKANSAS

Ouachita County

Robinson et al	Polk No. 1	16–15–19	2355	Dry

Smackover

Guy Freeling	Gibson No. 4	26–15–17	2333	30
J. E. Crosby	Berry No. 6	33–15–15	2385	2000
J. E. Crosby	Berry No. 7	33–15–15	2375	5000
Forrest Oil Co	Arnold No. 2	26–15–16	2103	75
Forrest Oil Co	Lewis B-2	26–15–16	2053	25
Gray et al	Myar Estate No. 5	32–15–16	2270	20
Marine Oil Co	Snyder No. 7	34–15–15	2380	7500
Miles et al	Neely No. 3	26–15–16	2085	100
Phillips Pet. Co	B. Joyce No. 6	33–15–15	2360	1000
Roxana Pet. Co	Snyder A-1	34–15–15	2380	1500
Roxana Pet. Co	Snyder A-2	34–15–15	2380	2000
Standard Oil Co	Umstead No. 16	32–15–15	2395	350
El Dorado Union Oil Co	Umstead No. 3	4–16–15	2370	3000
Federal Pet. Co	Ballard No. 6	10–16–15	2420	200
Federal Pet. Co	Flenniken No. 8	6–16–15	2380	1000
Federal Pet. Co	Flenniken No. 9	6–16–15	2385	2500
Federal Pet. Co	Lawton A-8	10–16–15	2460	200
Federal Pet. Co	Lawton A-12	10–16–15	2420	250
Holloway et al	Murphy No. 1	2–16–15	1980	120
Humble O. & R. Co	Flenniken A-5	3–16–15	2389	800
Ab Jones	Tatum No. 1	7–16–15	2390	800
Kinnebrew et al	William No. 6	3–16–15	2380	300
Lion O. & R. Co	Bilyew A-1	8–16–15	2475	600
Lion O. & R. Co	Murphy G-2	8–16–15	2485	500
Magnolia Pet. Co	Bradford No. 2	8–16–15	2385	200
Magnolia Pet. Co	J. Goodwin No. 5	5–16–15	2380	5000
Marr et al	Murphy No. 2	17–16–15	2500	200
Ohio Oil Co	Murphy No. 6	9–16–15	2410	500
Ohio Oil Co	Pate No. 9	10–16–15	2385	100
Pure Oil Co	Friend No. 6	6–16–15	2395	800
Pure Oil Co	Merriwether No. 3	6–16–15	2412	600
S. Richardson	Lawton No. 4	10–16–15	2465	500
Roxana Pet. Co	Bilyew No. 1	9–16–15	2420	2500
Roxana Pet. Co	Flenniken C-2	8–16–15	2405	125
Roxana Pet. Co	Hardy-Murphy 5	9–16–15	2394	1000
Simms Oil Co	Cook No. 8	16–16–15	2456	500
Standard Oil Co	Hardy-Murphy No. 29	4–16–15	2370	750
Stewart et al	Murphy No. 3	9–16–15	2485	1500
Sun Co	Hatfield No. 6	6–16–15	2380	800
Sun Co	Hays No. 12	3–16–15	2365	700
United Central Oil Corp	Murphy No. 5	8–16–15	2550	300
Unity Pet. Co	Bilyew No. 1	8–16–15	2400	3000
Unity Pet. Co	Lawton No. 2	10–16–15	2460	2000
Gulf Refining Co	Ralph Bennett No. 5	33–15–15	2390	500
Gulf Refining Co	J. H. Alphin No. 11	10–16–15	2385	200
Gulf Refining Co	John Goodwin A-2	5–16–15	2390	2000
Gulf Refining Co	G. E. Murphy No. 5	8–16–15	2430	3500
Gulf Refining Co	T. C. Murphy No. 7	9–16–15	2390	junked abd.
Gulf Refining Co	T. C. Murphy No. 18	9–16–15	2405	125

The time to set a hen is when she is in the notion

The time to install a cracking process is when there is a good demand ahead for gasoline at a good profit

The biggest profit on gasoline is for those who produce it from fuel, topped crude, or gas oil, run *once* through the Dubbs Cracking Process, using whichever stock is cheapest and available

The difference in profit to you between Dubbs Cracked Gasoline and any other is a good profit in itself—and there is no better gasoline than Dubbs Cracked Gasoline—there are few as good

Universal Oil Products Company
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Chicago Illinois

which 65 were oil wells, nine were gas wells, and 26 were dry holes. This compares with last week's total of 112 completions, divided 75 oil wells, 8 gas wells, and 29 dry holes.

The 65 oil wells included in this week's report had a total initial production of 22,772 barrels, giving them an average initial of 350.3 barrels per well, the highest figure recorded by Oklahoma completions in a number of weeks. Last week, 75 wells brought in 19,130 barrels of new production, with a per-well average of 255.1 barrels.

Completions reported from Kansas this week totaled 31, of which 14 were oil wells, one was a gas well, and 16 were dry holes. Last week, there were 45 Kansas completions, divided 27 oil wells, and 18 dry holes. The 14 oil wells in this week's report had a total initial of 2978 barrels, or an average of 212.7 barrels per well. Last week, 27 wells brought in 5413 barrels of new production, with a per-well average of 200.5 barrels.

U. S. Is Biggest Owner of Tank Ships

WASHINGTON, June 23.—Although America furnishes, roughly speaking, two thirds of the petroleum products used by the world, it is not strong enough in the trade to compel buyers to take oil in American ships in as large a proportion. Foreigners carry more than half the oil that is transported in ships.

A recently completed survey of the tanker ship world situation conducted by the research bureau of the United States Shipping Board, indicated that the United States owned 45 per cent of the tonnage but only 39 per cent of the total number of ships. Great Britain second with 36 per cent of the tonnage and 38 per cent of the ships. The next countries in point of ownership were Norway and Holland with about 4 per cent each, followed by France and Italy with 3 per cent each, while Argentina, Germany and Japan each had about one per cent. Sixteen other countries held the other six per cent.

This list includes all kinds of tankers, those that carry other kinds of oil and molasses as well. They are few in number, and could be used for petroleum in case of great need for them. The list showing ownership and tonnage, is as follow:

	Ships	Gross Tons
United States	469	2,507,854
Great Britain	391	2,074,086
Holland	44	193,848
Norway	42	231,934
France	35	164,695
Italy	35	145,005
Argentine	14	49,421
Germany	12	52,722
Japan	10	36,416
Spain	9	31,305
Belgium	7	35,063
Cuba	7	25,636
Other countries	31	140,051
Total	1,039	5,578,036

Oil Scouts National Anthem as sung at Fort Worth

Words and Music by N. E. Tanner

Humble Oil & Ref. Co. Mexia, Tex,

If you want to find out when a scout's a scout,
I'll tell you the best way for you to find out.
Just mention the Duke, and if he's O K,
He'll lift his voice to heaven,
And this is what he'll say,

Chorus

My God! The Duke is wounded,
Not mortally, I hope.

Now a Scout is a lesson in sobriety,
He's also there in society.
If you don't watch him he'll strut his stuff
Till the girls holler they got enough.

Always traveling, always on the roam,
Always broke when he's away from home.
They got to keep him that way, you see,
For if they didn't he break the Company.

He's got a gal in every town,
White and black, yellow and brown.
You can't blame him—what more could you expect?
He's just an evolution from the plain ruff neck.

Carries a map and a pencil, too,
Cigarettes and tobacco to chew,
Spits all over the derrick floor
And when it's gone he borrows some more.

Drives a car like a railroad runs a train;
If it would fly he surely would raise Cain.
I betchu he'd try to fly up and scout the moon,
And wouldn't come back till half past June.

Drives everybody else off of the road—
On his car he puts an awful load.
If he was to turn it over in the ditch
All he would get would be the seven-year itch.

Drinks any kind of licker from corn to jake;
Where it would kill others he won't hesitate.
Tips up the bottle and down she goes—
It would kill a cat, don't even wiggle his toes.

Got more lies than a brewery had kegs,
Got more gals than a fly's got legs.
Can throw more bull than any bull can throw.
And if you don't shoot him he'll hand you some more.

Knows every driller and ruff-neck, too,
From Goose Creek to Timbuckto.
There never was a well drilled since the world began
But what he won't say that he was on hand.

Drives all day and half of the night
Just to see a pair of roosters fight.
He shoots craps, plays poker, too,
And does everything that he shouldn't do.

Now you might think that by hearing this song
That a Scout's no good all the day long.
But better fellows you never have met—
If there's any better they ain't born yet.

And when they come to die and take their last sleep
There's not a one of them that wants you to weep.
Cause after they cross the river the first thing they'll do
They'll ask Saint Peter "HOW DEEP ARE YOU?"

FORT WORTH, June 19.—Olympia Oil & Refining Co., of Chicago, has closed a deal whereby it gains possession of the plant of the Dixie Gasoline Manufacturing Co., in the Byrd field, 12 miles north of Brownwood, and more than 1000 acres of leases. Consideration is reported to have been more than $500,000.

Royalties Still to Go to State Treasury

Staff Special

FORT WORTH, June 19.—The land committee of the University of Texas board of regents has authorized a statement regarding threatened oil lands litigation to the effect that in the event it "should be determined to institute legal proceedings no attempt would be made to recover from nor to require an accounting of the pipe line companies nor the lessees for oil produced and sold from the date of this meeting until date of the filing of the suit should it be determined to file suit."

It was also announced by the land committee that no dissension had existed or now exists within either the board of regents or the committee about policies to be pursued.

The board of regents recently employed an attorney to examine into and report on the legality of leases on University Lands, including those in the Big Lake field of Reagan county. This action followed a statement by members of the board that they believed the law under which these leases were made to be unconstitutional.

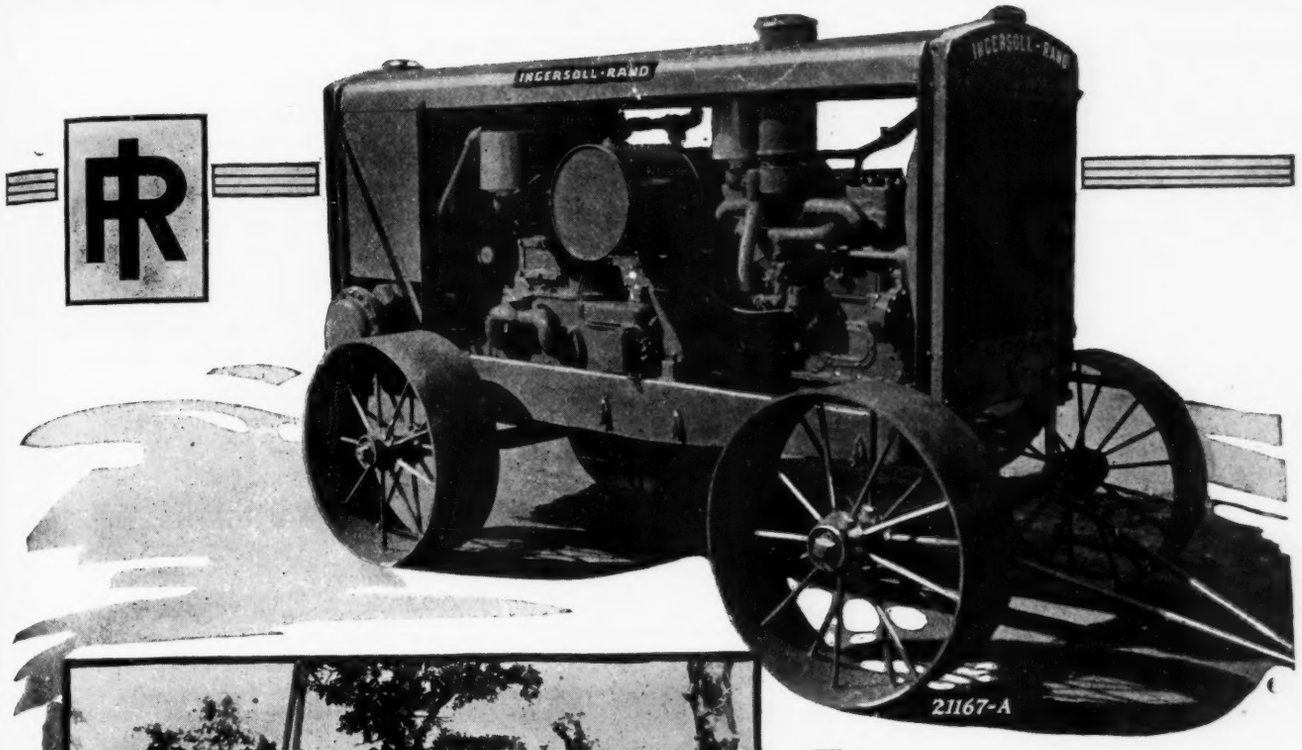
Should suit be filed and should it result in eventually voiding leases in the Big Lake field then the University of Texas would take back permit acreage validated into leaseholds by the Texon-Group 1 Oil Corp., interests and the Big Lake Oil Co., which last mentioned company obtained its properties from the original permit holders.

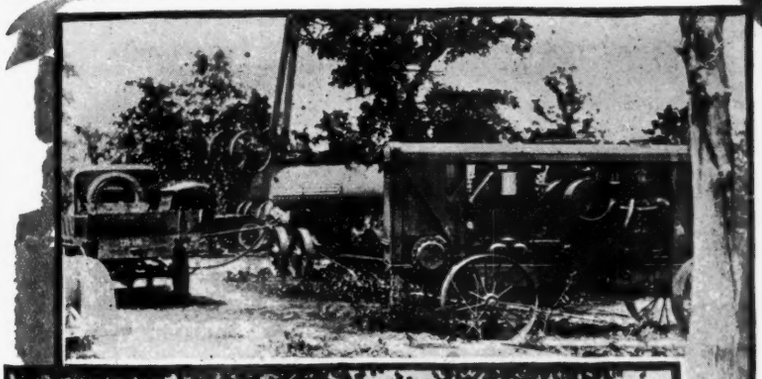
John J. Hiner of Fort Worth, general attorney of the big Lake Oil Co., is quoted as saying that the decision of the land committee of the board of regents clears the way for the continuance of royalty payments to the state treasury pending whatever action may be decided upon in the future. Whether such a suit will be filed later is yet to be decided upon.

Humphreys Headquarters Moved to Houston

HOUSTON, June 22.—The Humphreys Corp., under which name Col. A. E. Humphreys and associated now operate in Texas, will move its headquarters from Dallas to Houston where offices have been obtained in the Mason building. Company executives moving to Houston include C. L. Mayer, general manager of lands and leases; Frank W. DeWolf, chief geologist; S. A. Judson, assistant chief geologist; J. J. Shrewsbury, auditor and others. Col. Humphreys resides in Denver and F. Julius Fohs, vice president, spends most of his time in New York. Only a small office will be kept in Dallas.

High Pressure Portable Compressors





For Cleaning Wells

If there is any place where ruggedness and durability are essential it is in the oil field. These portable compressors are especially designed for cleaning wells. They are a real quality product—built to handle a difficult job.

Ingersoll-Rand high pressure portable compressors are designed to deliver air up to a pressure of 500 pounds per square inch. All materials used in their construction have been selected with the utmost care. All parts are made amply rugged to withstand high pressure work under oil field conditions.

THEY ARE PORTABLE—TAKE THEM OUT IN THE FIELD AND USE THEM ANYWHERE.

Let us send you complete information on these machines and how they can help in your production problems.

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Ingersoll-Rand

Crude Production by Districts

OKLAHOMA

	June 20	June 13
Cushing	22,300	22,300
Yale	6,950	7,000
Jennings	3,150	3,150
Garber, Billings	11,150	11,200
Tonkawa	58,100	58,900
Blackwell	6,900	6,700
North Okmulgee	16,550	16,300
Burbank, Osage county	57,800	58,150
Osage, outside Burbank	32,750	32,650
Healdton	15,400	15,350
Hewitt	15,100	15,150
Duncan	6,800	6,750
Lyons, Deaner	4,40^	4,400
Bristow	34,750	35,100
Wewoka	20,150	19,190
Cromwell	36,750	37,300
Graham	9,800	9,850
Stroud	4,600	4,650
Papoose	18,350	18,750
Watchorn	4,050	3,950
Fox	4,150	4,150
Other fields	61,750	60,750
Total	451,700	451,600
Increase		100

* * *

KANSAS

	June 20	June 13
Eldorado, Towando	14,450	14,400
Augusta, Fox Bush	5,700	5,700
Peabody, Elbing	5,200	5,200
Florence, Covert	2,200	2,200
Rainbow Bend	18,700	19,950
Other fields	57,500	57,800
Total	103,750	105,250
Decrease		1,500

* * *

NORTH LOUISIANA

Homer	6,700	6,700
Haynesville	13,300	13,300
Caddo, light	9,150	8,900
Caddo, heavy	2,400	2,150
De Soto, Red River	4,100	4,050
Elm Grove	650	700
Bellevue	3,450	3,450
Cotton Valley	11,500	11,450
Total	51,250	50,700
Increase		550

* * *

ARKANSAS

	June 20	June 13
El Dorado	8,950	8,950
Smackover, light	30,100	29,150
Smackover, heavy	259,750	314,650
Stephens	1,850	1,850
Nevada	1,600	1,600
Total	302,250	356,200
Decrease		53,950

TEXAS AND COASTAL LOUISIANA

Mexia, Currie, Richland	26,400	27,440
Corsicana, Powell	49,600	49,710
Wortham	39,500	41,300
Wichita Falls district	84,180	80,195
Ranger, lime	29,805	31,565
Ranger, sand*	21,135	21,485
W. Texas: Mitchell, Reagan and Scurry counties	32,310	32,760
Panhandle	3,655	3,180
San Antonio, Luling, Mirando	53,920	53,610
Coastal Texas	99,825	101,850
Coastal Louisiana	13,650	11,880
Total	453,980	454,975
Decrease		995

*Includes Young, Shackelford, Brown, Coleman, Callahan, Palo Pinto and Jack counties.

* * *

WYOMING

	June 20	June 13
Salt Creek	53,190	48,440
Teapot	1,645	2,140
Big Muddy	3,320	3,265
Grass Creek	4,750	4,675
Elk Basin	815	850
Greybull, etc.	130	100
Rock Creek	3,000	3,025
Lance Creek	810	390
Poison Spider	1,125	1,100
Osage	375	450
Hamilton Dome	700	435
Mule Creek	825	820
Lander	350	315
Lost Soldier	4,750	4,360
Ferris	165	150
Total in Wyoming	75,950	70,515

COLORADO

Craig	700	725
Fort Collins	165	420
Boulder	30	35
Florence	245	250
Rangely	100	110
Tow Creek	120	125
Total in Colorado	1,360	1,665

MONTANA

Cat Creek	3,640	3,270
Kevin-Sunburst	8,785	6,285
Total in Montana	12,425	9,555

NEW MEXICO

Artesia	1,500	1,280
Rattlesnake	460	335
Hogback	535	520
Totals in New Mexico	2,495	2,135

RECAPITULATION

Wyoming	75,950	70,515
Colorado	1,360	1,665
Montana	12,425	9,555
New Mexico	2,495	2,135
Miscellaneous	200	200
Total	92,430	84,070
Increase		8,360

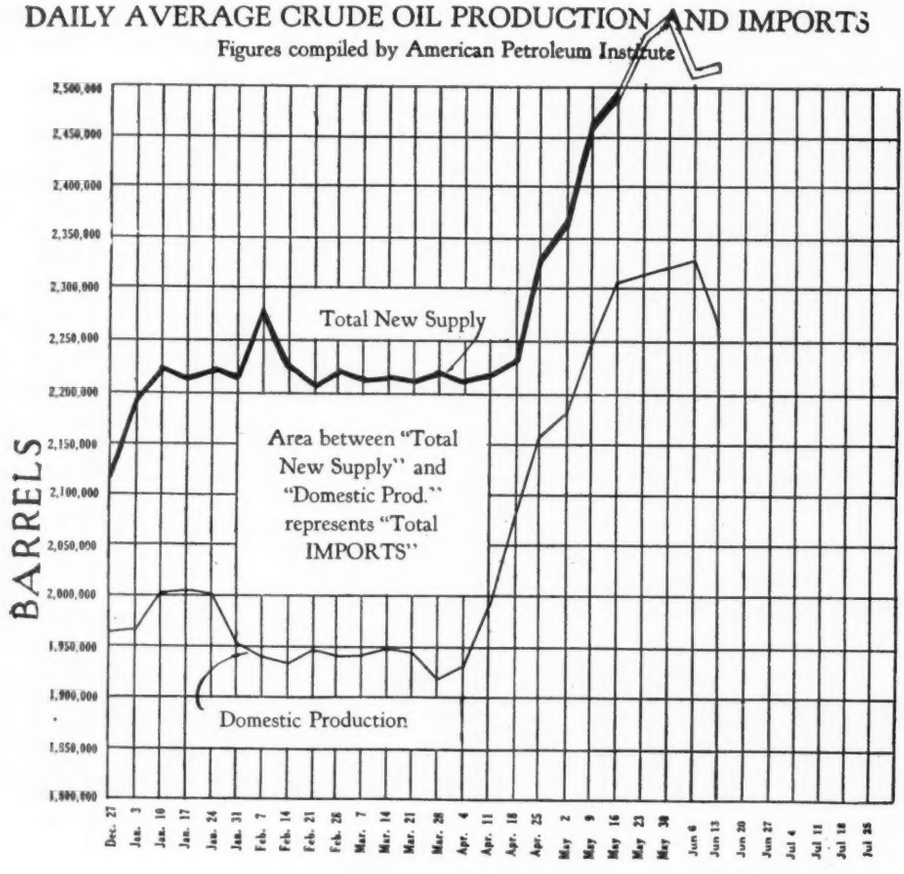
* * *

CALIFORNIA

Long Beach	108,000	109,000
Santa Fe Springs	52,000	52,000
Huntington Beach	44,000	45,000
Torrance	35,500	36,000
Dominguez	32,000	31,000
Rosecrans	20,000	22,000
Inglewood	60,000	47,500
Other fields	284,000	287,000
Total	635,500	629,500
Increase		6,000
Total Production in U. S.	2,195,360	2,236,295
Decrease		40,935

DAILY AVERAGE CRUDE OIL PRODUCTION AND IMPORTS

Figures compiled by American Petroleum Institute



Summary

Eastern	104,500	104,000
Prod. E. of Rockies	1,559,860	1,606,795
Decrease		46,935

Texhoma Sale Rumored

WICHITA FALLS, June 23—The Independent Oil & Gas Co. of Okmulgee is reported to be negotiating for the purchase of properties of the Texhoma Oil & Refining Co. here. It is not known whether principals of the two organizations have come close enough to terms to indicate that a sale is in prospect.

The Independent Oil & Gas Co. recently purchased all assets of the Allied Refining Co. at Okmulgee and is now operating that plant. Acquisition of the Texhoma would give the Independent a refining capacity of nearly 7000 barrels per day. Texhoma has extensive producing properties and leaseholds in north Texas and a distributing system which absorbs a part of its refined products.

HOUSTON, June 22—R. S. Petersen has arrived in Houston to take charge of the southwestern office of the Graver Corp., in the West bldg., where he succeeds C. E. Swanson, resigned. Mr. Swanson, who was widely known in the Texas territory, found it necessary to leave the southwest because of the continued illness of his wife.

Pipe Mills are Now Operating At High Average

By Special Correspondent

PITTSBURGH, June 22

TREMENDOUS production of oil in the past few weeks served as a stimulant to the oil industry and this has proved a big help to tubular products makers. Many calls for pipe of various sorts and grades have been made upon them both by dealers and oil companies direct and while individual tonnages have not been especially large, the aggregate is appreciable. As compared with about 70 per cent as an operating average early in May, pipe mills at present are averaging in the neighborhood of 90 or 95 per cent.

Inquiries for moderate sized lots of line pipe are frequent and are growing more numerous although large installations are rare. The larger orders come direct from oil companies ordering different grades of pipe, casing, surface pipe, etc. for three to five wells at a time. Oil country jobbers still are active in maintaining well balanced stocks. Often one to three carloads will be ordered to bring those stocks into balance again. Prices are firm at where they have been for more than two years.

Approximately 36 miles of 8-inch welded pipe will be needed by the Prairie Pipe Line Co., Tulsa, Okla., for a line from the Wewoka-Holdenville oil fields to its Texas-Chicago main line at Shawnee, Okla. Construction will be started at once.

Chief among the items pending in the plate market is the inquiry from the Houston Oil Co., Houston, Tex., for 900 tons. Ten stills for the Magnolia Petroleum Co., Beaumont, Tex., are calculated to take 2000 tons. A western oil company closed last week with the Struthers-Wells Co. for 40 large stills of 200 tons each. Another company is inquiring for 500 tons for refinery equipment, one or two others want 200 to 300 tons at a time and the Humble Oil & Refining Co., is in the market for a larger tonnage. The Gulf Coast Line is inquiring for 1400 tons for six tanks at Houston, Tex. The Petroleum Iron Works, Sharon Pa., recently received an order from the Standard Oil Co., of Louisiana, to build 28 55,000-barrel tanks at Anchorage, across from the refinery at Baton Rouge, La. The Texas Co., also has awared this interest a contract for four 37,000-barrel tanks for Port Arthur, Tex., three 55,000's for Port Neches and one each 64,000 and 34,000-barrel tanks for Nederland. The Andean National Corp. Ltd. New York has ordered 15 oil storage tanks for Colombia, South America, 3000 tons to the Chicago Bridge & Iron Works. Plates still are quoted at 1.90 cents to 2.00 cents, Pittsburgh, with lower than that minimum appearing occasionally in the east.

Structural shapes usually are sold at 2.00 cents, base. Miscellaneous work for the Standard Oil Co., of Louisiana will take 600 tons. A contract has been awarded by the Standard Oil Co., of New York, for a machine shop 115 x 169 feet and a woodworking plant to cost $68,000.

The Gulf Refining Co., executive offices, Frick Annex, Pittsburgh, plans an addition to its oil plant, Oak street and Ingham avenue, Bayonne, N. J. It will comprise a treating plant, two pumping plants, boiler house, stills, tanks and other structures to cost about $300,000 including equipment.

The Standard Oil Co., 329 North Harrington street, Raleigh, N. C., plans to erect a storage and distributing plant on North street, there with service, repair and garage building for company motor trucks and cars, to cost $45,000.

The Gulf Refining Co., Frick Annex, Pittsburgh, is arranging plans for extending its oil refinery at Port Arthur, Tex., and equipment will be installed costing $750,000.

The Magnolia Petroleum Co., Dallas, Tex., will proceed with additions and improvements to its refinery at Beaumont, Tex., which with additional equipment will cost $500,000.

The refinery of A. D. Miller & Sons Co., Columbus and Preble avenue, Northside, Pittsburgh was endangered by fire last Friday night. A fire started in a 400-barrel oil still in the Miller plant when a gasket in the still blew off. Damage was slight.

The American Natural Gas Co., has leased 20,000 acres of land in Snow Shoe and Burnside townships, Centre county, Pennsylvania from Col. H. S. Taylor, the Kelly Bros. and Lawrence Redding. It will prospect the territory for oil and natural gas and already contract for drilling test wells has been awarded to W. H. Hampt of Hawthorne, Pa.

The Brundred Gasoline Co., Oil City, Pa., has been incorporated at $100,000 to refine, manufacture, blend, buy and sell gasoline, etc. Interested are W. J. Brundred, H. D. Brown, Oil City and A. C. Smith of Titusville, Pa.

The O'Day Oil Co., Oil City, Pa. has been incorporated at $30,000 to drill for and produce crude petroleum, oil and its by-products. Incorporators are Charles O'Day, New York City and Frank O'Day with H. T. Quaile, Oil City, Pa.

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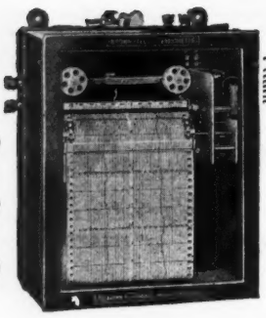
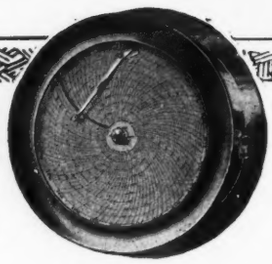


for recording
Refinery
Temperatures



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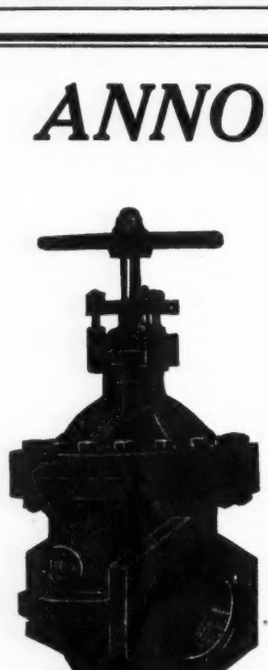

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Illinois Station Has Sun Parlor Over Canopy

PEORIA, ILL., June 18.—From a small curb station owner a few years ago to the owner of 32 pumps, two bulk stations, a battery station, a three-story garage now building, and a newly-completed $25,000 service station and accessory room, is the record of M. O. Finks, Shelbyville, Ill., according to Gus Frank, vice president of U. S. Petroleum Products, Inc., Peoria, Ill.

The new service station, which is located in the heart of the business district at Shelbyville, a picture of which appeared in the May 27 issue of National Petroleum News, is of rough surface, hard-finished mottled brick, with trimmings of variegated stucco work. The accessory room, offices, service station and two rest rooms comprise the main floor. The basement is divided into three rooms, and the upper floor, which contains eight rooms and sun parlor, is Mr. Finks' residence. The sun parlor is built over the canopy of the station. Parking space covering 110 by 100 feet is maintained at the rear of the station, free to the public. Two concrete drain pits are also at the rear of the station. Five men are employed at this new station.

The station is well illuminated, with 13 globes encircling the stucco-finished edges of the canopy. Large palms and other potted plants, which are placed at the ends of the pump islands, and at the sides of the station, help to beautify the surroundings. Wooden benches, which are painted in large letters advertising materials handled by Mr. Finks, are placed about the station for the use of patrons.

The one-story battery station, which was built a year ago, occupies space at the south of the station, while a $15,000 garage, 72 by 90 feet is being built on the station lot.

Mills Bennett Holdings Now in Company

HOUSTON, June 22.—Application to operate in Texas will be made immediately by the Mills Bennett Production Co., which was recently chartered in Delaware as a $2,000,000 close corporation. This company takes over properties in various Texas fields formerly operated by Mills Bennett as an individual.

Officers of the company include Mr. Bennett as president; E. G. Goforth, vice president; H. R. Hoffmaster, Jr., secretary and Charles R. Ogilvie, treasurer. Headquarters will remain in Houston.

Neutral Oils

GULF COAST

200 Vis. No. 2-2½ Color Unfilt. Pale
★Keen & Woolf Oil Co., Houston, Texas
300 Vis. No. 2-2½ Color Unfilt. Pale
★Keen & Woolf Oil Co., Houston, Texas
500 Vis. No. 3 Color Unfilt. Pale
★Keen & Woolf Oil Co., Houston, Texas
750 Vis. No. 3-3½ Color Unfilt. Pale
★Keen & Woolf Oil Co., Houston, Texas
200 Vis. No. 4½-5½ Color Unfilt. Pale
★Keen & Woolf Oil Co., Houston, Texas
300 Vis. No. 4½-5½ Color Unfilt. Pale
★Keen & Woolf Oil Co., Houston, Texas
500 Vis. No. 4½-5½ Color Unfilt. Red
★Keen & Woolf Oil Co., Houston, Texas
750 Vis. No. 4½-5½ Color Unfilt. Red
★Keen & Woolf Oil Co., Houston, Texas
1200 Vis. No. 3½-4 Color Unfilt. Pale
★Keen & Woolf Oil Co., Houston, Texas
2000 Vis. No. 3½-4½ Color Unfilt. Pale
★Keen & Woolf Oil Co., Houston, Texas
120 Vis. Black
★Keen & Woolf Oil Co., Houston, Texas
210 Vis. Transmission Lube.
★Keen & Woolf Oil Co., Houston, Texas

CALIFORNIA

100 Vis. No. 2 Color
Hercules Gasoline Co., Los Angeles, Calif.
100 Vis. No. 3 Color
Hercules Gasoline Co., Los Angeles, Calif.
200 Vis. No. 3 Color
Hercules Gasoline Co., Los Angeles, Calif.
300 Vis. No. 3 Color
Hercules Gasoline Co., Los Angeles, Calif.
450 Vis. No. 3½ Color
Hercules Gasoline Co., Los Angeles, Calif.
550 Vis. No. 3 Color
Hercules Gasoline Co., Los Angeles, Calif.
600 Vis. No. 3½ Color
Hercules Gasoline Co., Los Angeles, Calif.
100 Vis. No. 5 Color
Hercules Gasoline Co., Los Angeles, Calif.
200 Vis. No. 5 Color
Hercules Gasoline Co., Los Angeles, Calif.
300 Vis. No. 5 Color
Hercules Gasoline Co., Los Angeles, Calif.
400 Vis. No. 5 Color
Hercules Gasoline Co., Los Angeles, Calif.
500 Vis. No. 5 Color
Hercules Gasoline Co., Los Angeles, Calif.
600 Vis. No. 6 Color
Hercules Gasoline Co., Los Angeles, Calif.
700 Vis. No. 7 Color
Hercules Gasoline Co., Los Angeles, Calif.

ILLINOIS

180 Vis. No. 3-3½ Asso. Filt.
Indian Refining Company, Lawrenceville, Ill.
180 Vis. No. 5 Asso. Filt.
Indian Refining Company, Lawrenceville, Ill.

OHIO

90 Vis. at 100° F. No. 2 Color (Pale)
Craig Oil Co., Toledo, O.
200 Vis. at 100° F. No. 3 Color (Pale)
Craig Oil Co., Toledo, O.

OKLAHOMA

180 Vis. No. 3 Color
Shaffer Oil & Refining Co., Chicago, Ill.
200 Vis. No. 3 Color
Bell Oil & Gas Co., Tulsa, Okla.
Paraffin Oil—60-70 No. 2 Color
Shaffer Oil & Refining Co., Chicago, Ill.

PENNSYLVANIA

150 Vis. No. 3 Asso. Filt.
Butler County Oil Refg. Co., Bruin, Pa.
Emery Mfg. Co., Bradford, Pa.
Seneca Oil Works, Warren, Pa.
150 Vis. No. 4½ Filt. (Red)
Crystal Oil Works, Oil City, Pa.
180 Vis. No. 3 Asso. Filt.
Carnegie Refining Co., Carnegie, Pa.
Emery Mfg. Co., Bradford, Pa.
Seneca Oil Works, Warren, Pa.
200 Vis. No. 3 Asso. Filt.
Butler County Oil Refg. Co., Bruin, Pa.
Emery Mfg. Co., Bradford, Pa.
★Empire Oil & Grease Co., Inc., Oil City, Pa.
Seneca Oil Works, Warren, Pa.

Cylinder Oils

PENNSYLVANIA

600 Steam Refined
Bradford Oil Refg. Co., Bradford, Pa.
Butler County Oil Refg. Co., Bruin, Pa.
Crystal Oil Works, Oil City, Pa.
Emery Mfg. Co., Bradford, Pa.
Lucinda Refining Co., Lucinda, Pa.
635 Steam Refined
Bradford Oil Refg. Co., Bradford, Pa.
Emery Mfg. Co., Bradford, Pa.
650 Steam Refined
Bradford Oil Refg. Co., Bradford, Pa.
Butler County Oil Refg. Co., Bruin, Pa.
Emery Mfg. Co., Bradford, Pa.
Independent Refining Co., Oil City, Pa.
McKean County Refining Co., Bradford, Pa.
Seneca Oil Works, Warren, Pa.
600 Flash Steam Refined
Bradford Oil Refg. Co., Bradford, Pa.
Butler County Oil Refg. Co., Bruin, Pa.
Emery Mfg. Co., Bradford, Pa.
Independent Refining Co., Oil City, Pa.
Kendall Refining Co., Bradford, Pa.
McKean County Refining Co., Bradford, Pa.
★Waverly Oil Works, Pittsburgh, Pa.
620-630 Flash Steam Refined
★Waverly Oil Works, Pittsburgh, Pa.
600 Warren E
Butler County Oil Refg. Co., Bruin, Pa.
Carnegie Refining Co., Carnegie, Pa.
600 Oil City E
Butler County Oil Refg. Co., Bruin, Pa.
Carnegie Refg. Co., Carnegie, Pa.
Independent Refining Co., Oil City, Pa.
600 Filtered D
Butler County Oil Refg. Co., Bruin, Pa.
Cold Test Stock (bright filtered)
Carnegie Refg. Co., Carnegie, Pa.
Kendall Refining Co., Bradford, Pa.
Mutual Refg. Co. Warren, Pa.
Warr-Penn Refining Co., Warren, Pa.
Cold Test Stock (dark filtered)
Carnegie Refg. Co., Carnegie, Pa.
Warr-Penn Refining Co., Warren, Pa.
Black Oil
Emery Mfg. Co., Bradford, Pa.
Wax Oil
Lucinda Refining Co., Lucinda, Pa.

Motor Oils

ILLINOIS

Indian Refining Company, Lawrenceville, Ill.

OHIO

Craig Oil Co., Toledo, O.

PENNSYLVANIA—100% PURE

Butler County Oil Refg. Co., Bruin, Pa.
Carnegie Refg. Co., Carnegie, Pa.
★Continental Refining Co., Oil City, Pa.
Emery Mfg. Co., Bradford, Pa.
★Empire Oil & Grease Co., Inc., Oil City, Pa.
Seneca Oil Works, Warren, Pa.
★Waverly Oil Works Co., Pittsburgh, Pa.

SOUTH TEXAS

Atlas Petroleum Corp., San Antonio, Tex.
Pioneer Oil & Refg. Co., San Antonio, Texas

Greases and Soap

Auto Soap
Damascus Mfg. Corp., Cleveland, O.
Schaeffer Bros. & Powell Mfg. Co., St. Louis, Mo.
Stevens Grease & Oil Co., Cleveland, O.
Axle Grease
Schaeffer Bros. & Powell Mfg. Co., St. Louis, Mo.
Chatterless Oil Base
Damascus Mfg. Corp., Cleveland, O.
Schaeffer Bros. & Powell Mfg. Co., St. Louis, Mo.
★Waverly Oil Works Co., Pittsburgh, Pa.
Cup Grease
★Columbia Oil Co., 3419 Papin St., St. Louis Mo.
Richardson Lubricating Co., Quincy, Ill.
Schaeffer Bros. & Powell Mfg. Co., St. Louis, Mo.
Yuba Oil Refining Co., Nacogdoches, Texas
Cutting Compounds
Damascus Mfg. Co., Cleveland, O.
Stevens Grease & Oil Co., Cleveland, O.
Gear Grease
Schaeffer Bros. & Powell Mfg. Co., St. Louis, Mo.
Yuba Oil Refining Co., Nacogdoches, Texas
Jack-Post Grease
Schaeffer Bros. & Powell Mfg. Co., St. Louis, Mo.
Mill Grease
Stevens Grease & Oil Co., Cleveland, O.
Mine Car Lubricants
Stevens Grease & Oil Co., Cleveland, O.
Pressure Gun Grease
★Columbia Oil Co., 3419 Papin St., St. Louis, Mo.
Fiske Bros. Ref. Co., 24 State St., New York, N. Y.
Branch 215 Pontiac St., Toledo, Ohio
Schaeffer Bros. & Powell Mfg. Co., St. Louis, Mo.
Stevens Grease & Oil Co., Cleveland, O.
Soluble Oils & Base
Damascus Mfg. Corp., Cleveland, O.
Stevens Grease & Oil Co., Cleveland, O.
Sponge Grease
Schaeffer Bros. & Powell Mfg. Co., St. Louis, Mo.
Transmission & Differential Grease
Capstone Mfg. Co., Plum Pt. Lane, Newark, N. J.
★Columbia Oil Co., 3419 Papin St., St. Louis, Mo.
Damascus Mfg. Corp., Cleveland, O.
Fiske Bros. Ref. Co., 24 State St., New York, N.Y.
Branch 215 Pontiac St., Toledo, O.
General Petroleum Co., 292 Madison Ave., New York
Stevens Grease & Oil Co., Cleveland, O.
Universal Joint Grease
Stevens Grease & Oil Co., Cleveland' O.

Wax Distillate

PENNSYLVANIA

34-34½ Gravity
Bradford Oil Refg. Co., Bradford, Pa.

Wax

ILLINOIS

124-126 White Crude Scale
Indian Refining Company, Lawrenceville, Ill.

OKLAHOMA

124-126 White Crude Scale
Bell Oil & Gas Co., Tulsa, Okla.

PENNSYLVANIA

122-124 White Crude Scale
Butler County Oil Refg. Co., Bruin, Pa
Emery Mfg. Co., Bradford, Pa.
Independent Refining Co., Oil City, Pa.
Kendall Refining Co., Bradford, Pa.
124-126 Crude Scale (off white)
Crystal Oil Works, Oil City, Pa.
128-130 Refined
★Waverly Oil Works Co., Pittsburgh, Pa.

Fuel Oil

ARKANSAS

20-24 Fuel Oil
★Imperial Oil Mktg. Co., Tulsa, Okla.
32-36 Gas Oil
★Imperial Oil Mktg. Co., Tulsa, Okla.

CALIFORNIA

14-18 Fuel Oil
Hercules Gasoline Co., Los Angeles, Calif.
14-18 Bunker Oil
Hercules Gasoline Co., Los Angeles, Calif.
27 + Diesel Oil
Hercules Gasoline Co., Los Angeles, Calif.
20-24 Fuel Oil
Hercules Gasoline Co., Los Angeles, Calif.

KENTUCKY

24-26 Fuel Oil
Ashland Refining Co., Ashland, Ky.
Great Southern Refining Co., Lexington, Ky.
28-30 Fuel Oil
Ashland Refining Co., Ashland, Ky.
30-32 Fuel Oil
Ashland Refining Co., Ashland, Ky.
34-38 Gas Oil (light)
Great Southern Refining Co., Lexington, Ky.
34-38 Gas Oil (dark)
Ashland Refining Co., Ashland, Ky.
Great Southern Refining Co., Lexington, Ky.
38-40 Gas Oil (light)
Ashland Refining Co., Ashland, Ky.

NORTH LOUISIANA

14-18 Fuel Oil
Caddo Central Oil & Refining Co., Shreveport, La.
18-22 Fuel Oil
Louisiana Oil Refg. Corp., Shreveport, La.
30-32 Gas Oil
Caddo Central Oil & Refining Co., Shreveport, La.
32-36 Gas Oil
Louisiana Oil Refg. Corp., Shreveport, La.
34-36 Gas Oil
Caddo Central Oil & Refining Co., Shreveport, La.

NORTH TEXAS

24-26 Fuel Oil
Sunshine Consolidated Oil Co., Wichita Falls
34-38 Gas Oil (dark)
Texhoma Oil & Refg. Co., Wichita Falls, Tex.
38-40 Distillate—Prime White
Noble Oil & Gas Co., Tulsa, Okla.

OKLAHOMA

22-24 Fuel Oil
L. O. Carter Co., Tulsa, Okla.
26-30 Fuel Oil
Bolene Refining Co., Enid, Okla.
30-32 Fuel Oil
Bolene Refining Co., Enid, Okla.
32-36 Gas Oil
Bolene Refining Co., Enid, Okla.
Cameron Refg. Co., Ardmore, Okla.
L. O. Carter Co., Tulsa, Okla.
★Imperial Oil Mktg. Co., Tulsa, Okla.
★Roxana Petroleum Corp., St. Louis, Mo.
36-38 Straw Distillate
Cameron Refg. Co., Ardmore, Okla.
38-40 Straw Distillate
Bolene Refining Co., Enid, Okla.

PENNSYLVANIA

30-34 Fuel Oil
Butler County Oil Refg. Co., Bruin, Pa.
Mutual Refg. Co., Warren, Pa.
36-40 Fuel Oil
Bradford Oil Refg. Co., Bradford, Pa.
Carnegie Refg. Co., Carnegie, Pa.
Emery Mfg. Co., Bradford, Pa.
Independent Refining Co., Oil City, Pa.
Lucinda Refining Co., Lucinda, Pa.
McKean County Refining Co., Bradford, Pa.

SOUTH TEXAS

22-24 Fuel Oil
Pioneer Oil & Refg. Co., San Antonio, Texas

Road Oil

OKLAHOMA

Altitude Petroleum Co., Tulsa, Okla.

Petroleum Coke

Imperial Oil Mktg. Co., Tulsa, Okla.
Johnson Oil Ref. Co., 208 LaSalle, Chicago, Ill.
Kendall Oil Refining Co., Bradford, Pa.
Shreveport Prod. & Refg. Co., Shreveport, La.

Those companies marked with a star are using regular display advertising space in National Petroleum News.

Changes Procedure in Application Of Gasoline Shipping Rules

By Special Correspondent

WASHINGTON, June 19.—Hereafter rules and regulations for the transportation of petroleum and its products will be made and changed in accordance with the well known and well established methods of procedure used in the making of freight rates. Announcement to that effect was made by W. P. Bartel, director of the Interstate Commerce Commission's Bureau of Service just before he began listening to testimony in respect of amendments to the rules and regulations for the transportation of explosives and other dangerous articles, the latter being the classification given to many petroleum products.

That announcement means that when any one in the oil industry thinks there should be a change in any of the rules or regulations pertaining to the transportation of any petroleum product he will be expected to apply to the Bureau of Explosives of the American Railway Association, 30 Vesey st., New York, of which Col. Beverly W. Dunn is the chief.

Unless it is an emergency matter, the request will be placed on the bureau's docket for discussion either at a regular or a special meeting. The bureau is to make up a docket and hold hearings on the subjects listed for consideration at least four times a year; oftener if necessary, but not less than four times a year.

If there is no objection to the change, or if the bureau thinks the change should be made nevertheless, it proposes the change to the Interstate Commerce Commission for promulgation by it on such notice to those affected by it as it deems necessary.

A like course is to be followed when the bureau thinks a change is necessary. The bureau, in either case, is to give the shippers affected time to consider the matter and formulate objections, before the matter is presented to the commission, the main object of the new procedure being to force full consideration by the railroads and the industry before the subject is presented to the body that has power to prescribe the necessary regulations for the safe transportation of freight that involves hazard to lives or property or both. The regulating body wants to consider only such subjects as have been threshed out by the representatives of the railroads and the shippers to a point of final issue or disagreement. Matters which they can settle it desires them to dispose of.

In the event the shipper is unable to persuade Colonel Dunn's bureau to make a favorable recommendation to the commission, the latter will be at liberty to bring his subject to it. But it does not want to hear from either side unless there has been an effort to come to an understanding. It has work enough of its own to do to keep it busy with only those matters that are in hot controversy between the carriers and those they serve.

This change is being inaugurated because there has always been more friction about such regulations than, to a majority of the commissioners has seemed necessary. At times the Bureau of Explosives has been accused of arbitrariness and at times shippers, especially oil shippers, have been accused of opposing everything looking toward safety.

Until three or four years ago charges and counter charges about freight rates were exchanged. In 1920 the shippers, represented by the National Industrial Traffic League, and the railroads, represented by the Association of Railway Executives and the American Railway Association, agreed that nothing should be undertaken in the way of revisions of freight rates in advance of full conferences between both parties.

Freight rate committees were set up in each of the great freight rate provinces. Subjects were docketed for consideration at stated hearing times. Publication of those dockets is more religiously made than by any courts in the world. Shippers are no longer taken by surprise in important rate change proposals. Comparative peace prevails. That does not mean there are no disagreements. It means no more than that the fights over rates are conducted in an orderly manner. The railroad no longer lies in wait for the shipper at a dark corner to slug him with a lead pipe.

The hearing on June 10 was of only minor interest to the oil industry, most of the amendments proposed pertaining to the transportation of poisons, including ethyl chloride, one of the basic materials in the making of tetraethyl lead. The regulations were changed so as to allow greater quantities of it to be transported in less than carloads.

A proposal to allow the experimental use of safety valves, dome covers and bottom discharge outlet equipment on tank cars under rules approved by the tank car committee of the American Railway Association was agreed to without a word of debate. Willis Crane, speaking for the American Petroleum Institute, said the industry had no objection to the proposal.

—THAT'S ALMOST 400 PER CENT. INCREASE IN THE COST— AND BESIDES I AM YOUR BEST CUSTOMER —AND— AND— T'AINT RIGHT
AMERICAN RUBBER INDUSTRY
J. BULL
CRUDE RUBBER
OIL MAN
WELL, IT'S ABOUT TIME SHE SAID SOMETHING ABOUT IT!
DAILY PAPER
THE INCREASE IN THE COST OF CRUDE RUBBER WILL ADD TO THE COST OF RUNNING A CAR
SEDGWICK

NEIGHBORHOOD NEWS

THE EDITORS' VIEWPOINT

New Avenue of Taxation

THE state of Connecticut has opened up a new avenue to oppress the oil industry by taxation. It would set up its Commissioner of Motor Vehicles as a czar over the oil marketing business in that state, under the guise of protecting the public against hazards, presumably fire, from the installation of service stations and roadside pumps.

It would make the oil company or any owner of stations dispensing gasoline, either wholesale or retail, have a permit from the commissioner before it could build and operate a station. For such a permit the owner would pay $25—for the examination of the location by the commissioner or a deputy. For each additional pump installed there is a fee of $5. In addition to this, this proposed Connecticut law would impose an annual license fee of $5 for each station with one pump and $2 for each additional pump.

This looks like a very thinly-veiled attempt to gyp the oil marketing business in that state for the benefit of the state politicians. The only conceivable peril to the public particularly to a service station is from fire there and, so far as actual records go, this hazard is not nearly so great at gasoline stations as in other lines of business.

Just how competent an authority would a state commissioner of motor vehicles be to pass on such a hazard as offered by a location for a station? The danger, if any existed, would come from faulty construction or operation of the station. The public is protected from this by municipal building regulations and regulations for installing oil storage tanks. Connecticut is unlike most states if it does not have a state fire marshall's office, which is far more competent to pass on such matters than the state automobile bureau and can do it without charging a license fee for every station built or pump put in. The public in Connecticut should look on this measure as another politicians' attempt to tax the oil business, not as any safety measure.—V. B. G.

Explain Price Changes

THE oil industry is still raising its prices without making any explanations either to its employes or the general public. As this paper has urged for a long time, this we believe to be a serious error.

Unfortunately it has been the policy of the oil companies to consider the oil industry as any other industry and offer the public no explanation for price changes until officers of big oil companies are dragged before a commission or Senate investigating committee and under oath seemingly forced to explain the sound business policy of their change in price. That is months and even years after the change. The sound business reasons never get to the public. All the public sees is the oil man, threatened under the duress of a subpoena, seemingly being compelled to make reluctant answer to the questions of the valiant champion of the people's rights or whatever the particular prosecuting attorney may care to call himself.

The time to explain the price change is when the change is made. It can be issued simultaneously with a bulletin on the change. It should carry the exact reasons for the change in reasonable detail. This bulletin should be issued to all company employees—should be issued to the oil papers and to the newspapers. It could even be posted on the company's bulletin boards at service stations.

If every oil company, particularly the big ones, followed this policy it wouldn't be long before the public would not be interested in these reasons, because the public would appreciate, after having read our reasons for a lot of price changes, that they were legitimate. But now the oil industry leaves itself wide open for any politician to put his own interpretation on the price changes and offer his own reasons therefore. Of course those politicians are never right.

Consider the hallabaloo which has been kicked up in Virginia by the candidacy of one Senator Byrd for the democratic nomination for governor which is reported on page 72 of the June 3rd issue of this paper. If the oil companies operating in that territory had given to the public their real reasons for the changes the past six months when they were made, Mr. Byrd would have been disarmed before he started—in fact, he never would have started, because he would have turned elsewhere for the sensationalism that he seems to feel is necessary to boost him into the governor's chair. One would think that the oil industry had had punishment enough for this undesirable reticence.— W. C. P.

Evidence of Honest Frankness

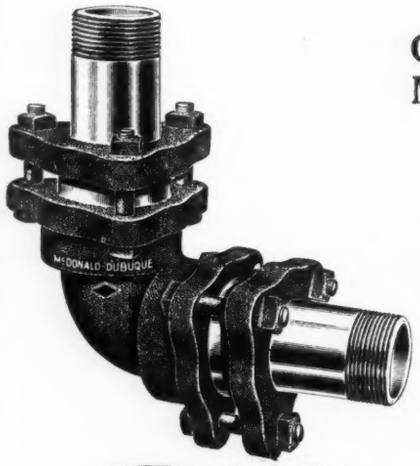
THE big job before the big oil companies is to make not only their stockholders, but the public, realize the merit and the detail of their operations. The Texas Company took a long step in this direction when, in its last annual report, it gave a great deal of detail concerning its activities. It told not only about its profit and loss statement and its balance sheet, but it took its stockholders and the public into its producing properties, into its refineries, into its terminal stations and into its bulk stations and marketing business.

The report had on its face every evidence of honest frankness. There was probably detail there in which even the stockholders were not interested, but the presence of that detail strengthened the frank appearance of the report and gave proof in the reader's mind of the good sound business intention and policies of the company. The Standard Oil Co. of New Jersey, for years has gone into great detail in its stockholders reports and its last is up to its usual high standard. Frankness is one thing which the oil industry has been loath to learn. It's got to be frank not only about its prices and its activities in general, but it must be ever so frank in the next few years about the detail of its operations.—W. C. P.

After a four months' suspension. the weather has resumed the payment of dividends to the commuter.—The Lamp.

The fellow that makes an article as well as he can most always has a call to make another one.—The Lamp.

"THE HOME OF THE SWING JOINT"



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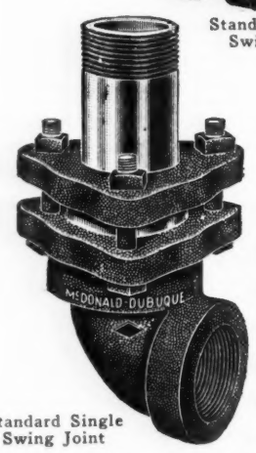

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Boilovers Seldom Occur in Oil Tank Fires Except Where Crude Burns

By H. H. Hall

Chief Engineer, Standard Oil Co. of California

Part 2: (Part 1 Printed in June 10 Issue, Page 56.)

I. DETAILED DESCRIPTIONS OF TEST 4, 9 AND 12

These three tests are included as typical of the three different ways in which oil in a burning tank may be expected to act.

In test No. 9, where crude oil was burned, a sharp heat wave developed and a boilover resulted when this reached the water in the bottom of the tank.

In test No. 4, burning water-white distillate, no heat wave formed and consequently no boilover occurred.

In test No. 12, crude naphtha was burned. This oil contains a small percentage of heavy ends. Consequently a heat wave formed at the start, but this died out when it had advanced about two-thirds of the depth of the oil, so that in spite of the fact that water was in the bottom of the tank no boilover occurred. The oil burned quietly down to the water surface and went out.

Form of Records:

With a view to arranging the data obtained in each test in a convenient form for reference a "graphical log" has been prepared for each. The following quantities have been plotted on a time basis.

Paper submitted to A.S.M.E. on Dec. 9, 1924. Read before San Francisco section of A. S. M. E. on March 26.

1. The temperature of each thermocouple.
2. The level of the burning surface (as indicated by a gauge well with which each test tank was equipped).
3. The level of the "high temperature front." Since the actual temperature of the hot layer varied in different tests from about 250° to 700° F., it was decided to take 200° as the critical temperature in all tests, with the thought that shortly after the temperature at any level passed that point, water would commence to boil, and consequently that that temperature might well be regarded as the governing "front" of the heat wave.

On the vertical scale representing the levels, there have been indicated the locations of all thermocouples. This permits reading from the log the time at which the high temperature front, or the burning oil surface, passed any of these points.

To show the gravity changes which occur in the oil as it distills (or burns), the following information has been plotted on the right hand end of each chart, using the same vertical scale of temperature as was used for plotting the thermocouple records on the log proper:

(a) The ordinary fractional distillation curve of the oil—in which the per cent distilled is plotted against tem-

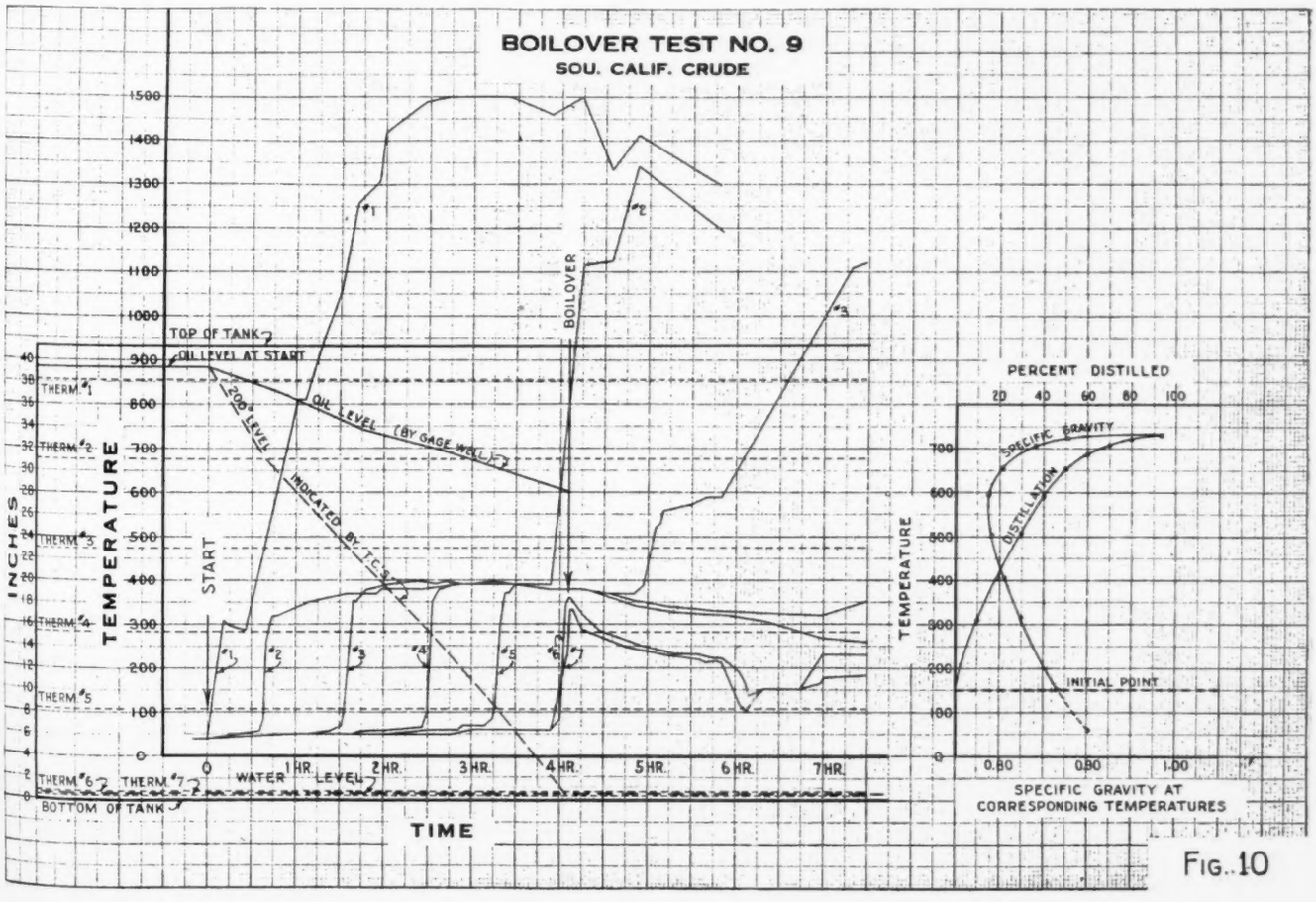

FIG. 10

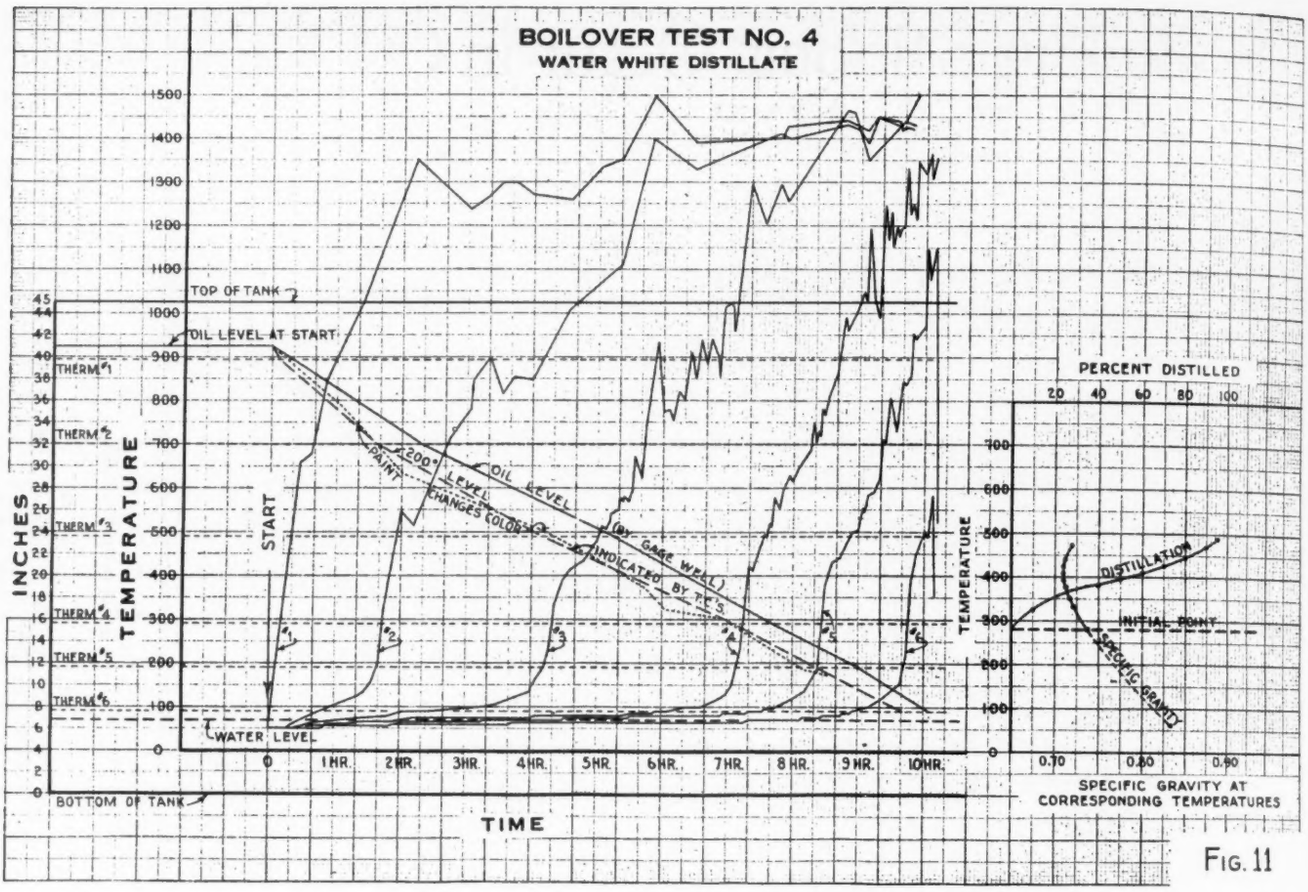

FIG. 11

perature. This curve is marked "distillation."

(b) A curve computed from the fractional distillational data, showing the specific gravity of the **residue** at any given temperature of distillation. The inflection in this curve, showing where the residue, even though at a high temperature, begins to get heavier than the oil at lower temperature where less has been distilled, gives an indication of the temperatures at which a "heat wave" will start to form in the oil.

Test No. 9 Crude Oil—Heat Wave—Boilover

Object: To observe the burning characteristics of crude oil, with small amount of water on tank bottom; and to investigate possibility of preventing boilover by drainage.

Equipment Used: 110-gallon drum similar to Figure 1, but with thermocouples and sample draws at slightly different elevations. Bottom of tank was dished slightly to facilitate draining; but some irregularities remained so that the water would barely run out.

Oil Burned: Southern California crude 25.4° A. P. I., water content about 1.1%. For distillation and specific gravity curves see graphical log, Figure 10.

Discussion: As indicated by the graphical log, the oil burned at practically a constant rate of 2.8" per hour; and a "heat wave" travelled down at an almost constant rate of 9.5" per hour. The oil burned for about 4 hours without any unusual event. A slight boiling or crackling sound was audible almost from the start. At the end of the fourth hour this boiling and crackling sound became much more pronounced, the flames shot up considerably higher, and some steam was emitted. Thermocouple No. 6, which was just above the surface of the water in the bottom of the tank, had started to go up rapidly, and as the purpose of this particular test was to investigate the possibility of preventing a boilover by draining the tank bottom, about one gallon was drawn off. This should have removed the water that had been placed in the bottom; but apparently drainage was not complete, for as the bottom thermocouple (No.7) came up past 212°, a small boilover occurred—throwing out only a few gallons of oil.

As a check on this test, the same oil burned at the same time in a similar drum, with all conditions the same except that drainage was not resorted to, resulted in a boilover which threw out about 50% of the contents.

Conclusions: This test confirms the indications of other tests in which crude oil was burned, that a sharply defined heat wave will form and a boilover may be expected when crudes of average gravity and water content burn.

Drainage from the bottom of a burning crude oil tank will probably reduce the intensity of a boilover, but cannot be counted on to prevent it.

TEST No. 4
Water White Distillate—No Heat Wave —No Boilover

Object: To determine whether refined oil having a narrow range of boiling points will boil over when burned with water in the bottom of the tank.

Equipment Used: 110-gallon drum, with test equipment substantially as shown in Figure 1.

Oil Burned: Water-white distillate, gravity 38.4° A. P. I., water content—trace, and fractional distillation as shown on the graphical log, Figure 11. 34½" of oil was placed in the tank with 6½" of water on the bottom. Thus the oil level at the start was 4" below the top of the tank.

Discussion: It will be noted that thermocouple No. 1, which was just below the oil surface at the start, came up very quickly. Within 15 minutes it had reached a temperature of 550° which is approximately the end-point of the oil burned. The gauge readings show that, as would be expected, the oil surface had burned down to the level of the thermocouple by that time. This thermocouple was from then on directly exposed to the radiant heat of the flame its temperature continued to increase until it reached almost 1400°. which is approximately the flame temperature observed in all tests.

Thermocouple No. 2 which was 9" below the oil surface at the start, warmed up very gradually for the first 1¼ hours. After 1½ hours the oil had burned down so that the surface was less than 4" above this thermocouple. In the next hour its temperature also went up to 550°; and at this time the oil level was

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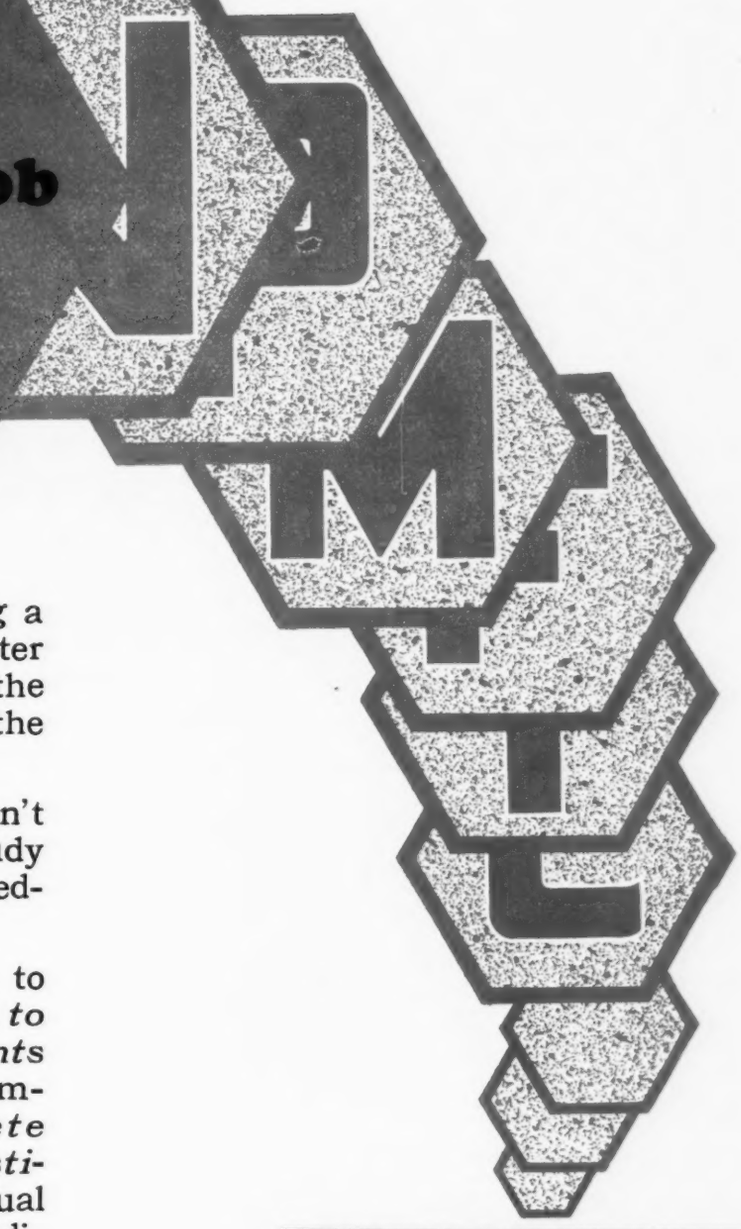

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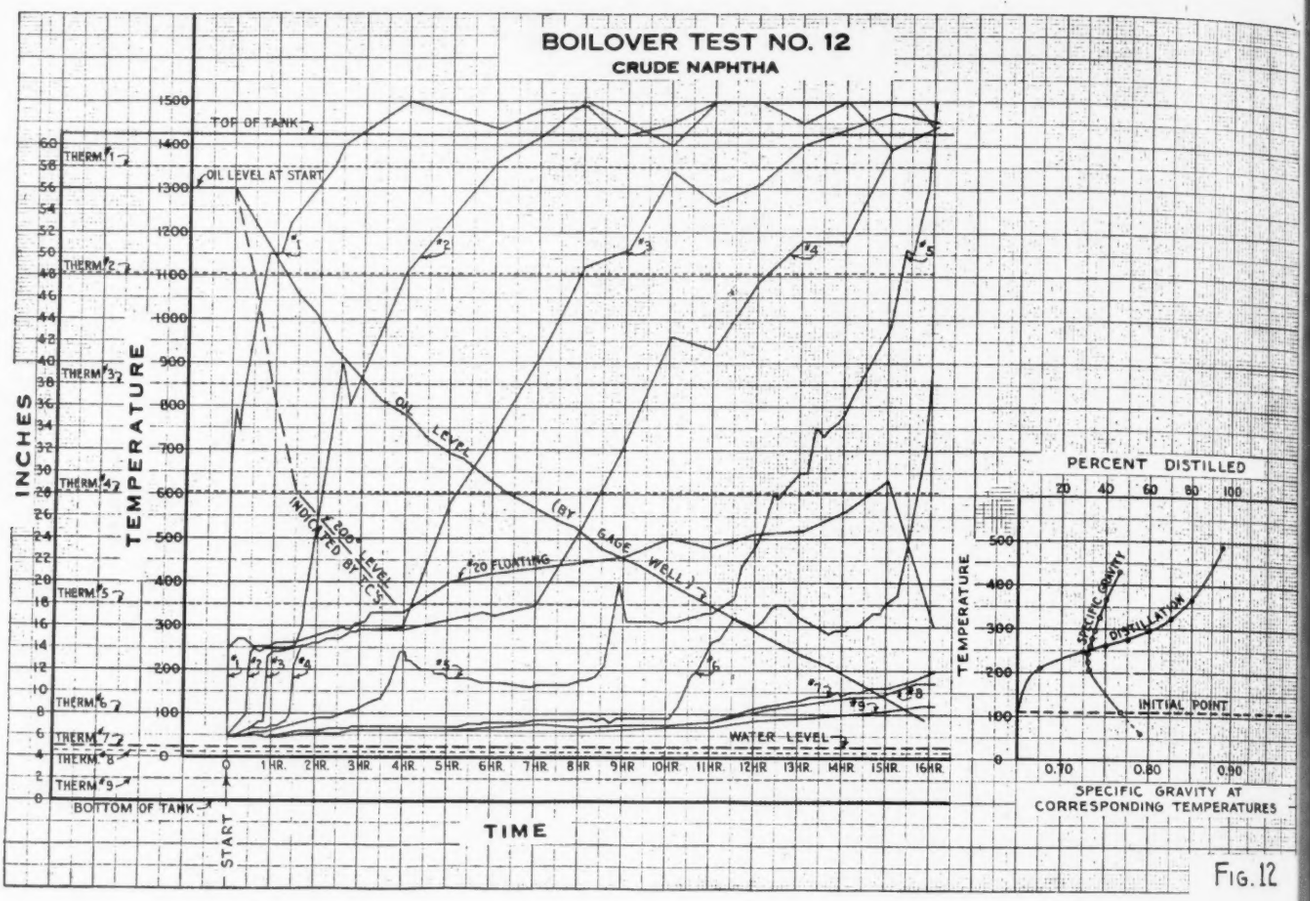


FIG. 12

found to have reached this thermocouple.

The other thermocouples behaved in similar way—warming up very slowing until the oil had burned down to within a few inches of them and then coming up fairly fast, reaching the temperature corresponding to the end-point of the oil just as the surface had burned down to the level of the thermocouple. Heat was thus evidently carried down below the burning surface only by conduction or very local convection.

This is as would be expected from the distillation and gravity curves, shown on the graphical log. On account of the narrow range of boiling points of the oil used, it contained practically no heavy ends which would settle after partial distillation and thus carry heat down; that is, there was no "heat wave," as observed in tests on crude and fuel oils (see graphical log of test No. 9, Figure 10).

The fire burned without event at a rate of about 3.4" per hour until about 3:30—practically 10 hours after the start. By this time the oil level had burned down to within 2" of the water in the bottom of the tank. These two remaining inches of oil were by this time heated up to approximately 200°, and this hot oil on top of the water caused it to boil and sputter somewhat. This agitation occasionally caused momentary increases in the size of the flame but this was the only effect noticeable. The burning rate gradually slowed down, and the fire went quietly out, leaving an oily scum only a few hundredths of an inch thick floating on the surface of the water.

A stripe of the temperature indicator paint described in Part I of this article, (page 75, N. P. N. June 10) was applied to the side of this tank, and used for checking the indications of the thermocouples as to the rate at which the oil heated up. It will be noted that the curve on Figure 10 plotting the data obtained by these two methods practically coincide, thus confirming the reliability of the temperature indicator paint as a means for determining the depth to which the oil has been heated up at any time.

Conclusions: An oil with a narrow range of boiling points, and hence with no large difference in the gravity of its fractions, will not heat up more than a few inches below the burning surface. Hence no boiling over is to be expected even though water may exist on the bottom of the tank.

TEST NO. 12

Crude Naphtha—Heat Wave Started But Died Out—No Boilover

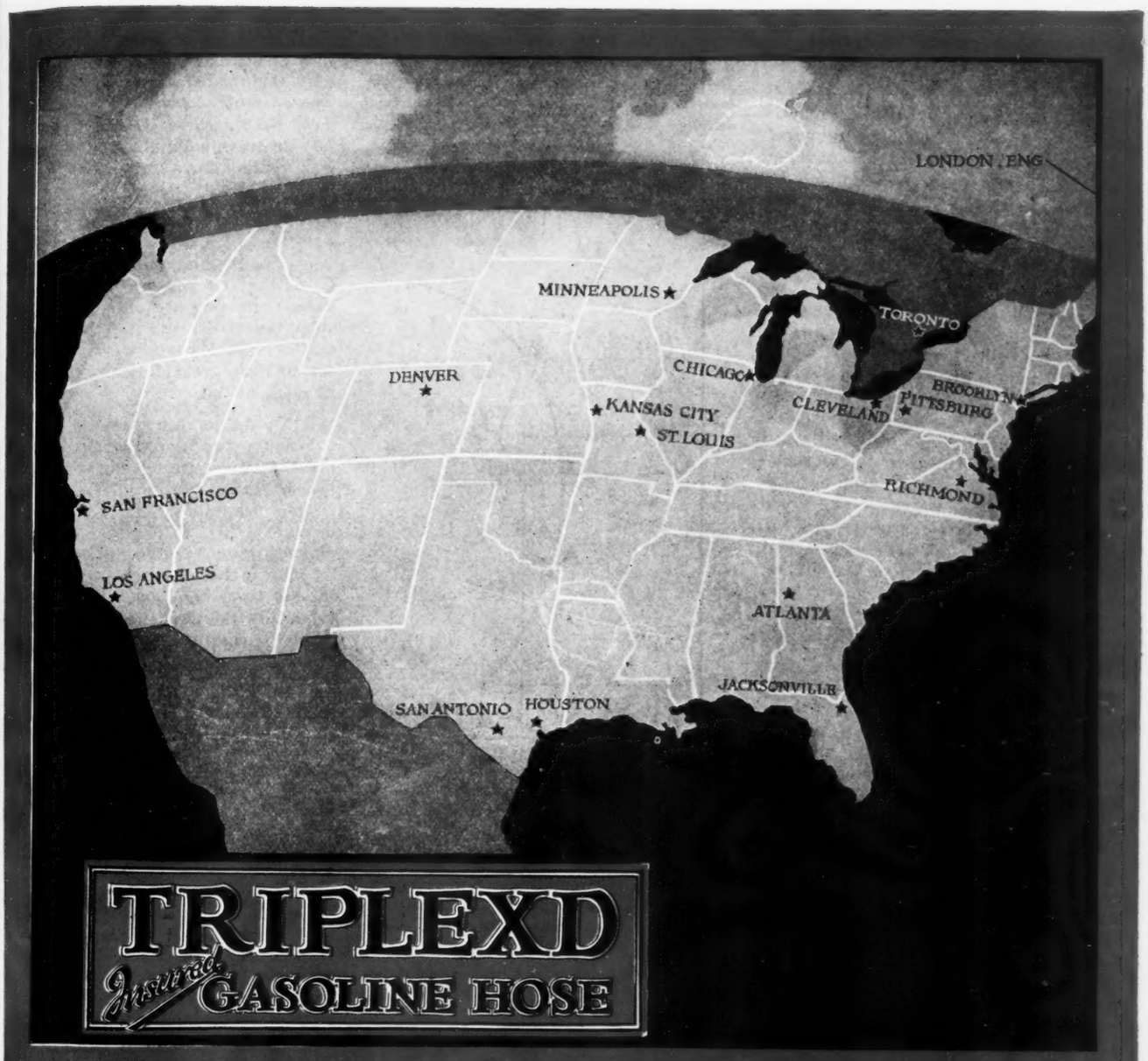
Object: To investigate burning and heating characteristics of light refined oil with relatively wide range of boiling points; also to determine whether action would be the same in a larger tank (350 gal.)

Equipment Used: 350 gallon test tank (42"x60"), equipped with thermocouples and sample draws, as shown in Figure 4.

Oil Burned: 51" crude naphtha, 48° A. P. I., free from water, and having distillation characteristics as shown on the graphical log, Figure 12, was placed over 5" water (leaving about 4" freeboard at start).

Discussion: The oil burned without event for 16 hours, except when a slight rain occurred about the end of the thirteenth hour, causing slight boiling sounds. At the beginning of the seventeenth hour, when the oil level had burned down within less than an inch of the water in the bottom, flames began to shoot up higher, (probably caused by momentarily increased distillation due to steam bubbles agitating the oil); but in a few minutes the fire went out, leaving about $3\frac{3}{16}$" of heavy ends on top of the water.

As indicated on the graphical log, the burning rate averaged about 6" per hour for the first three hours, gradually decreasing to an average of about 2½" for the remaining 13 hours. A "heat wave" started down very rapidly, at the rate of 20" per hour. However, it soon slowed up, and by the end of the fourth hour, when the front of the heat wave had reached thermocouple No. 5, 40" below the original surface, it had practically died out—as evidenced by the fact that the temperature of this thermocouple started **decreasing** before it quite reached the temperature of heat wave (which at this time had gone up to about 290° F). This action is in line with the theory outlined later where it it pointed out that as soon as distillation



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conditions in the oil become such that the heat wave cannot be further advanced, cooling may be expected to begin at the bottom of the heated layer.

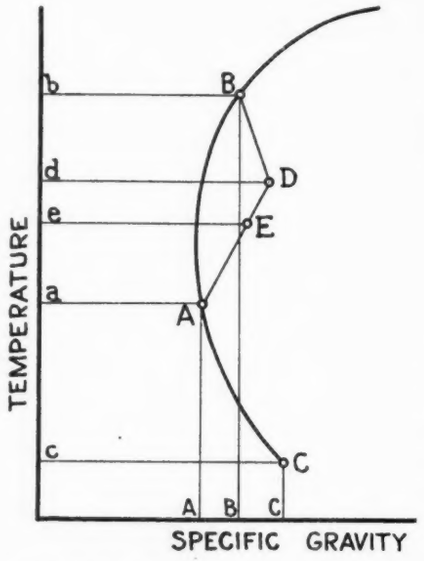
It will be observed that this condition existed for the next 4½ hours, by which time the oil surface had burned down to within 7″ of thermocouple No. 5. By this time the gravity of the oil remaining in the tank (as indicated by a sample drawn from about 5″ below the burning surface) had decreased to 39.3° A. P. I. almost 9° heavier than at the start. This reduced residue apparently contained a sufficient proportion of heavy ends to permit a feeble heat wave to start again. This is evidenced by the sharp rise which was shown by thermocouple No.5*, and the fairly steep rise in thermocouple No. 6 (10″ below) which occurred about two hours later. However, this secondary wave also apparantly died out before reaching the water level, which was about 2″ below thermocouple No. 6. By the time enough heat had reached the water to bring it up to the boiling point there was practically no oil left; therefore there was no boilover, and the fire simply sputtered and went out.

It has been pointed out above that the behavior of the heat wave in this test was in line with the theoretical reasoning regarding the mechanism of heat waves, advanced elsewhere in this report. Several other factors, which are clearly brought out in the graphical log, and which further support this reasoning, are given below:—

a. The gradually increasing temperature of the heat wave. It will be noted that at the start, when the heat wave was very pronounced, its temperature remained constant (as in other tests where heat waves were observed) at about 240° for the first 1-½ hours. Then, as the heat wave started to die out, the temperature of the hot layer began to go up, and by the end of the seventh hour had increased approximately 100°. As previously pointed out, this is just what would be expected when the distillation characteristics of an oil are such that the heat wave does not persist.

b. The gradual increase in temperature which was observed throughout the test drum—almost from the beginning of test No. 12 is also in line with the arguments advanced in the theoretical discussion. The graphical log (Figure 12) shows that even those thermocouples in the water, at the very bottom of the drum, started going up slowly by the time the oil had been burning for about 1-½ hours, and continued to raise very gradually throughout the test—the rate of increase accelerating somewhat at the beginning of the twelfth hour when the oil level had burned down to within 13″ of the water. Furthermore, no sharp front was observed in the heat wave, even at the start when it was advancing rapidly. Thermocouple No. 2, which was almost 10″ below the oil surface at the start, began to come up almost immediately, and after an hour, had risen gradually to 100° before the real front of the heat wave arrived. Similar gradual increases were shown by all the other thermocouples, being particularly marked in No. 5, as discussed above.

Conditions in Test No. 9, where a strong heat wave persisted to the bottom, were in sharp contrast with those described above. The temperature at the bottom remained almost constant



Specific gravity temperature cure. *See Page 120*

(around 50°F.) until the heat wave arrived; and then every thermocouple showed a sudden sharp rise in temperature. This would indicate that there must have been strong agitation at the front of the heat wave, which insured that every hot particle which came down immediately became mixed with cold oil just below. On the other hand, with the dry oil burned in Test 12, there was evidently much less agitation at the intraface, so that many of the hot particles passed right on down into the cooler oil below.

Further evidence that this action was going on is afforded by the continuous increase in specific gravity that was observed at the levels of sample-draws near the bottom of the tank. At 6-½ hour after the start, a sample drawn 16″ from the bottom was 5° A. P. I. heavier than the oil at the start; and even at the 8″ level (just 13″ above the bottom of the oil—since there were 5″ of water in the tank bottom) a decrease in gravity of more than 3° was indicated. In samplt drawn from the 15″ level in sharp contrast with these results, a test No. 9, after the fire had been burning more than two hours, showed almost exactly the same gravity and water content as at the start.

These results are all directly in line with the theoretical reasoning later on in their report, where it is pointed out that the absence of water from an oil will be likely to make the heat wave less sharp, as well as making it harder for the wave to persist.

c. The temperature-specific gravity curve reverses at a very low temperature (a little below 250°). This explains why the temperature of the heat wave was so much lower in this test than in Test No. 9, where (in the case of crude oil) this reversal did not occur until 600° was reached.

Furthermore, the curve for crude naphtha in Test 12 is relatively flat beyond the point of reversal. That is, even when the distillation is carried practically to the 100 per cent point, the fractions remaining are only a little heavier than the cooler oil. From this condition it would be expected that a heat would have great difficulty in persisting in such an oil.

d. By means of a special floating thermocouple the temperature of the oil right at the burning surface was measured. The readings of this thermocouple are plotted on Figure 12 (see curve No. 20). It will be noted that this showed temperatures ranging from 20° to 100° higher than the temperature of the hot layer, thus confirming the theory regarding the existence of an especially hot layer right at the surface from which the heavy ends settle to produce a heat wave.

All told, it is felt that this test, considered in comparison with Test 9, illustrates very well the various factors which may influence the formation and progress of a heat wave, as discussed later.

Conclusions: 1. Crude naphtha will not boil over, even if water is at the bottom of the tank, because a heat wave will not ordinarily persist to the bottom; and even if it should (because of a very shallow depth of oil, or the presence of unusually heavy ends) the oil will not form a tough enough froth to cause a boilover—provided the bottom is clean.

2. Since the general behavior of the oil in this larger tank was essentially the same as when similar oil was burned in a 110-gallon tank, it appears that the latter is large enough to give reliable information.

NOTE: When the records of this test were first studied, it was suggested that the dying out of the heat wave might have been due to the deceleration of the burning rate, which in turn was attributed to the fact that the oil level had burned so far below the top of the drum that it could not get sufficient air to burn at the original fast rate. However, in a subsequent test (No. 34) a tank of crude naphtha 10 feet high was burned with an arrangement for blowing air down on the surface as the level receded. The burning rate at the start of this test was 7.7 inches per hour (which is practically as high as has been observed in actual crude naphtha fires in full sized tanks); and with the forced draft arrangement this burning rate was kept fairly constant throughout the test—in fact, it was accelerated toward the end. But the heat wave died out in exactly the same way as was observed in Test No. 12, thus indicating that the conclusions drawn above are correct and will apply with equal force to a crude naphtha fire in a full size tank (provided the oil is not contaminated with any heavy bottoms).

2. Theory of Heat Wave Propagation

The theory advanced in the body of

(Continued on Page 120)

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(Continued from Page 116)

the report to account for the rapid advance of heat down into the body of the oil, which was observed in all tests where an oil with a wide range of boiling points was burned, was that as the light fractions distill off of the very hot surface layer, the residue finally becomes so heavy that it sinks.

At first thought it may be a little difficult to picture minute hot particles settling from the burning surface through a considerable depth of "hot layer", without mixing with the oil through which they are sinking and giving up their heat to it. The mechanism by which this probably takes place can perhaps be better understood by reference to a typical specific gravity-temperature curve of an oil with a heat wave, as shown in curve on preceding page.

The curve gives the specific gravity changes due to combined effect of heating and the removal of light ends by distillation. "C" represents the cool oil with specific gravity "C" and temperatures "c". "A" represents the temperature and specific gravity of the hot layer; "B," the point where the heavy ends, being heavier than "A," begin sinking into hot layer of gravity "B" has already lost its light ends, the cooling curve will not be the same as the original curve C-A-B, but will be for example, along some curve B-D. If it is now assumed, that, when it reaches temperature "d," it mixes with some of the oil of the hot layer, which is at temperature "a," the resulting mixture will have a temperature "E"; it will be noted that the gravity "E" of this mixture is still considerably heavier than that of the main body of the hot layer, so that the larger globule of mixed oil will still continue to settle, carrying its heat content with it. The process is thus progressive.

New Home Oil Burner

DETROIT, MICH., June 11.—Silent Automatic Burner Corp. has just been organized here to manufacture a new home oil burner which will retail complete with tankage and controls, for $350.

All officers are manufacturers and business men of Detroit. Walter F. Tant, formerly secretary and treasurer of the Michigan Stamping Co., is president.

Other officers include Karl B. Segall, formerly production manager of the Michigan Stamping Co. and president of the F. J. Goodenow Furnace Co., vice-president; Howard L. McGregor, assistant to the president of the National Twist Drill Corp., who is also well known for his connection with the Ford Motor Co. of Canada, secretary.

Included on the board of directors are F. J. Hamblen, Jr., of Warren, Caddy, Hill & Hamblen, and A. B. Hoffman, of the Security Trust Co.

RYAN, IA.—Sinclair Refining Co. is installing three new curb pumps in this vicinity, reports John E. McElligott, agent.

NEW OIL STATION CONSTRUCTION

Lansing, Mich.—The Arrow Oil Co. is building new service station in East Lansing, adjacent to the Michigan State College grounds. The Station will be in keeping with the beauty of the college buildings, and will be made of green and white enameled brick and slate roof. It will be one of the finest in Lansing, according to A. B. Spalding, secretary and manager, and will be completed by July 15.

* * *

Boston, Mass.—Mrs. Edith Albee, who has been granted permit to build filling station in West Roxbury, may be deprived of permit because of zoning act.

* * *

Fargo, N. D.—Jacob Kiefer, vice president of Kiefer Auto Co., of Moorhead, N. D., will build filling station and garage at Moorhead.

* * *

Boulder, Colo.—Don Glendenning is building filling station on the hill across from the University of Colorado.

* * *

Wadena, Minn.—City Oil Co. building filling station. Home Oil Co. will build service station also.

* * *

Jefferson, O.—Standard Oil Co. of Ohio purchased property for service station.

* * *

Little Falls, Minn.—A filling station is being added to the C. C. Lisle garage.

* * *

Chippewa Falls, Wis. — Standard Oil Co. of Indiana building filling station.

* * *

Chancellor, S. D.—George E. Otten leases property for filling station.

* * *

Hastings, Neb. — Marsh, Marsh & Bullock building service station.

* * *

Wymare, Neb.—A. C. Henderson erecting filling station.

* * *

Iron Mountain, Mich.—Union Oil Co. to build filling station.

* * *

Manhattan, Kan.—L. E. Hobbs to erect service station.

* * *

Tiffin, O.—Albert H. Diringer to build service station.

* * *

Monticello, Fla.—D. H. Mays building service station.

Malone, N. Y.—The Raeoil Co., with headquarters here, has just been organized with R. W. Totman and E. H. Totman. The company will operate in Malone, Massena and Potsdam, and will erect service stations.

* * *

Santa Maria, Calif.—Morris Zanetti is erecting service station here, to be equipped with three 10 gallon pumps. Mr. Fillipponi will have charge of station.

* * *

Dodsonville, O.—Charles G. Stroup erecting service station on state highway, to be equipped with two rest rooms and shower baths for tourists.

* * *

St. Cloud, Minn.—Local Oil Co., with headquarters here, is building filling station at Gillman, Minn.

* * *

Pine River, Minn.—M. N. Shaw and William Stevens of Wadena, Minn., building filling station.

* * *

Sherburn, Minn.—Martin County Oil Co. is adding filling station to Colvin Bros. garage.

* * *

Devils Lake, N. D.—Standard Oil Co. of Indiana building service station.

* * *

Knoxville, Minn.—Standard Oil Co. of Indiana building filling station.

* * *

Staples, Minn.—Charles Batcher building filling station.

* * *

Elbow Lake, Minn.—Hanson Bros. building filling station.

* * *

Albuquerque, N. M.—I. N. Talley to build filling station.

* * *

Little Rock, Ark.—Emmet Morris to build filling station.

* * *

Ironwood, Mich.—Mose Giansante to build filling station.

NEW ORLEANS.—Magic Petroleum Co. and Hogan Producing Refining Co., which have been inactive for some time, are in the process of reorganization, and expect to be going at full swing within a few months. These two companies are engaged in producing, refining, marketing and exporting of petroleum products. John W. Hogan is president of both.

Deep Test Brings Alberta Operators Back to Their First Oil Field

By Lawrence E. Smith
N. P. N. STAFF WRITER

CLEVELAND, June 18

NOWHERE on the continent of North America is there to be found a brand of optimism in more concentrated form than in Alberta. Calgary, the chief city between Great Falls, Mont., and Edmonton, Alta., is the permanent abiding place of that individual who laughs off lightly the rebuffs of fortune and keeps his eyes ever fixed on the end of the rainbow.

In matters pertaining to oil, Calgary has been especially certain that the future held much of success. It was all a question of drilling in the right place and once that was found, it would not be an exciting affair but merely confirmation of what everyone should have known all the time.

Right now, Calgary has warrant for believing itself to be on the brink of big happenings. In the event that any one of the several wells now going down in the Turner Valley field is successful, the excitement which accompanied the discovery of the Turner Valley field in 1913 will be revived.

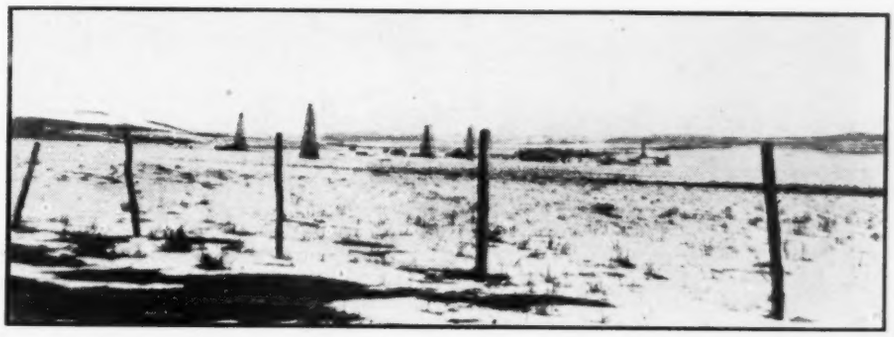
That boom in 1913 cost Canada a lot of money. The field is located near Calgary, nearer the town of Okotoks and still nearer the post office known as Black Diamond, all of which names the field has borne successively, or it may be, simultaneously. As if that number were not enough, it has also been called the Sheep River field and once in a while the Lineham post office has come in for some of the credit. One might believe from reading the various reports on this field, that Alberta had a number of oil fields. It was merely one field with a lot of names.

Some description of that boom was recently given by a writer in "The Lamp," publication of the Standard Oil Co. of New Jersey, who said:

"In the Albertan foothills, south of Calgary, the foundation stone was laid for western Canada's one and only intensive oil boom when, in 1913, the MacDougall Segar Oil Co. spudded in their first well.

"Growing out of the impetus thus given, the 'Calgary Petroleum Products' commenced operations and it is largely due to the stick-atitiveness of this latter company that the Turner Valley field has remained in the running and has, eventually, monopolized the limelight.

"Little success was vouchsafed these pioneers, but their inadequate shows of oil and stray gas sands were deemed a sufficient bait by the fly-by-night promoters, who promptly set out to teach Calgarians in particular, Albertans in general and suckers indiscriminately, the true inwardness of speculation in oil.



View of the Turner Valley field, Alberta, before the recent excitement

A Feverish Period

"It was a hectic period in which printing presses figured more largely than drilling rigs; the chaste artwork on the share certificate was of greater moment that the value of the lease; the barroom ballads were of structures or gushers, and even the child with a dollar in the bank was legitimate prey.

"'Geologists' sprang from the soil or were imported regardless of cost or credentials; all of them were 'eminent,' some were eminently respectable. They mapped structures, made locations, took their fees and eventually their departure lest worse befall them.

"The new field attracted drillers like a magnet. They came with the easy assurance of long experience or unlimited confidence. Some stayed to lose their aplomb, their tools and their reputations, and some went back whence they came, unwept, unhonored and, through lack of opportunity on the part of the populace, unhung.

"Amidst this welter of insane speculation, despite the rank imposture of pseudo-scientific humbugs, and in the face of many legitimate failures, there was still a remnant whose faith in the field refused to waver. They lacked money, they lacked material but they did not lack courage and, through their efforts, the making of holes went ahead slowly but surely until a modicum of success was met with."

Following the orgy of stock-selling, and generally unsuccessful development, the Turner Valley field went along its prosaic way, producing a small amount of oil, a fair amount of gas and some gasoline from the gas. The prospectors went far afield from Turner Valley in their search for oil and except for the Fort Norman discovery away up near the Arctic Circle and some heavy oil found in the Wainwright district of Alberta, nothing happened.

Meantime, the Calgary Petroleum Products was taken over, in 1920, by the Royalite Oil Co., subsidiary of the Imperial Oil, Ltd. The new company put down a third well and started a fourth just to see what, if anything, might be under the strata whence came the gas and oil which the field was yielding.

The deepest well operated by the Royalite was the No. 1 which, being located down the flank of the structure, was pretty deep—3924 feet— and to this day produces a small amount of oil of high gravity and varying amounts of wet gas.

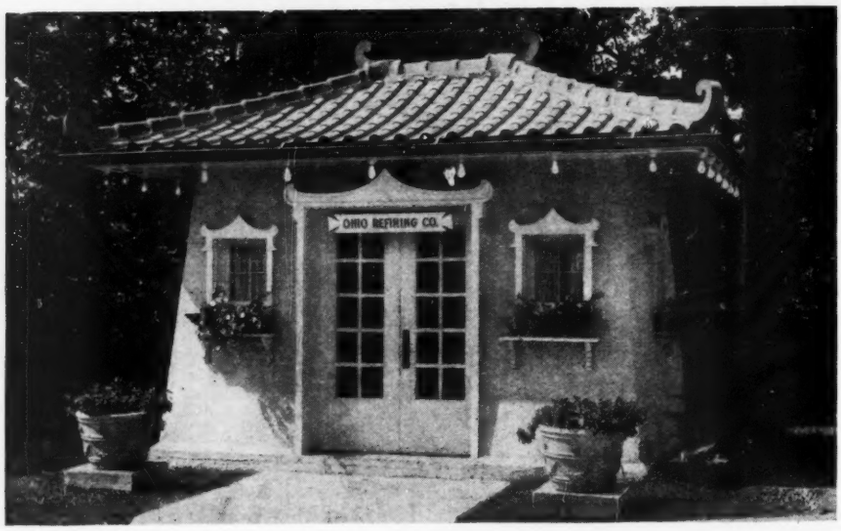
Some six wells were producing upward of 12 million feet of gas at the end of last year and the total oil yield was around 40 to 50 barrels daily. The operation of the Royalite absorption plant was profitable.

The deep test of the Royalite, No. 4, was located on the apex of the structure and was started in 1922. Progress of this well from the time it began drilling is described in "The Lamp."

From September, 1922, to November, 1923, drilling was carried forward continuously. Ninety feet of the 20-inch were put in, 702 feet of 15½, 1192 feet of 12½ and 1957 feet of 10-inch, one of the longest strings of that size ever used in Canada. A string of 8¼ was run in and at 2871 feet a gas sand was opened up which showed a production of seven million cubic feet a day, the largest well thus far in the Turner Valley field. From November 15, 1923, to May 21, 1924, drilling was suspended so that the well might deliver gas during the winter months.

Ellis Sand Dry

"When drilling was resumed, the 8¼ was landed at 3053 feet and all appeared propitious for the deepest well in Alberta. At 3450, with a 6¼ string,



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Jay B. Rhodes observed this several years ago and made a dispenser to sell oil *quick*. This has been thoughtfully improvea —by making it visible, by adding an air vent, by developing d guaranteed full quart container, and lately by shaping the neck of the container to fit the hand and adding a dust cap. The Rhodes was the first—the Rhodes is the leading motor oil dispenser.

Your merchandising ability and a set of Rhodes Dispensers will increase your oil gallonage. They come in low-priced sets of eight in a welded metal carrier.

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KALAMAZOO, MICHIGAN
Toronto St. Louis San Francisco

the top of the lime had been reached and the possibilities of the field appeared to have been exhausted, as the sand, corresponding to the Ellis in the Kevin field (Montana) has proved to be absolutely dry. (Note: Principal gas production in the field has been from the Dakota sandstone.)

"Nevertheless, with the 6¼ landed at 3450, drilling was continued in the open hole, if for no other reason than that the going was good and a deep test was intended anyhow.

"Slowly the bit worked its way through the hard lime, five feet per tower being about the average progress. Samples of the rock were sent to headquarters for examination, a minute fossil was packed in cotton wool and hurried beneath the paleontologist's microscope. The verdict was not encouraging. Drilling was undoubtedly in the Madison lime, a Mississippian formation with few bituminous antecedents, at least in the Rocky Mountain region, but, while the doctors hesitated to sign its death certificate, Royalite No. 4 stole a march on them.

"At a depth of 3740, or nearly 300 feet in the limestone, gas was struck in such quantity and under such pressure that the drilling tools were blown up in the hole and lodged in the bottom of the 6-inch casing. There were no preliminary rumblings to warn the drillers of the impending strike; at one moment they were pounding the bottom of a failure and the next they had brought in Canada's most phenomenal well."

And there you are. Gas couldn't be in that formation, said the savants, but there it was. The Madison lime is all the rage now in Alberta. If it were down in Oklahoma, they would doubtless be referring to it as the Wilcox, and, indeed, that would in a loose way fulfill the requirements of terminology.

Big Gasoline Production

The subsequent history of this No. 4 well is quite thrilling. Of course, a fishing job had to turn up just after the gas was found and that was followed by a fire. A good many million foot pounds of energy were expended by the workmen on the job, but the well finally was brought under control and at this time is making upward of 20 million feet of gas daily against a back pressure of 800 pounds and through two drips and a gas separator it is giving off from 300 to 400 barrels daily of 70 Be. gravity naphtha.

The rule which applies in this case, as in all others of similar nature, is to try it again if you have encountered something favorable. So the Royalite has made locations for Nos. 5 and 6 and is, by this time, ready to start drilling or has started. These are to be rotary tests. One of them is 200 yards northwest of the big fellow and the other is a mile and a half southeast. The suitability of the rotary for that territory is not yet proven, so it is not safe to make any predictions as to how long it will be before these two tests are completed.

The Royalite is, in both these wells, sticking pretty close to the axis of the

anticline and the other folks who are planning to drill are doing the same, as neary as their holdings will permit. No other large companies are in the field, although scouts have reported that they have seen scouts of the Union Oil Co. of California looking things over.

Others Will Drill

Something like seven other operations are listed as fairly certain for this year. Some of them are in the nature of fishing jobs to start off. It is proposed to deepen wells that have been drilled to shallower levels and a majority of such holes have considerable junk in them. Expert fishermen may find steady employment for quite a while on this type of wells.

During this year, if the drillers have fairly good luck, Turner Valley should develop some more news as to the existence of an oil field. If the natural gasoline which the No. 4 well is making really indicates the presence of a large body of oil, Alberta will be all set for an extensive campaign of wildcatting to the Madison lime.

Law Question Involved in Effort to Market Oil From New Pool

By Special Correspondent

WASHINGTON, June 18.—Appeal for relief from what they think is an intolerable transportation situation has been made to federal authorities by Smitherman & McDonald, Inc. Keystone Co., G. W. Ames and H. S. and R. L. Autrey, oil producers in Nevada county, Ark., where a small pool of heavy oil exists adjacent to the Smackover field.

They have asked the Interstate Commerce Commission to declare the Mansfield Hardwood Lumber Co. to be a common carrier subject to the national laws pertaining to the regulation of railroads, their rates, charges and practices. The authorities of Arkansas, by means of an act passed by the legislature, have declared that the railroad owned by the lumber company is a common carrier. That is all right so far as it goes, but Arkansas cannot go far enough to do the complaining oil men much, if any good. Their crude goes to points outside of Arkansas. The Arkansas statute can have force only in that state.

The complaining producers are dependent upon the railroad of the lumber company for transportation from the wells, in Nevada county, to Reader, a point on the Gurdon & El Dorado branch of the Missouri Pacific. They pay the lumber railroad 15 cents per barrel for taking the oil to Reader, about 20 miles from their wells, and then pay the El Dorado and Smackover rates from that point whereas their competitors in the El Dorado and Smackover fields pay only the rates applicable from Reader.

In other words, the complainants, assert that they pay from $30 to $33 per car more for getting their oil to refineries at Baton Rouge, on the Texas coast, and in Illinois, to which points they aver they have already shipped more than 1500 cars. They declare that the extra burden of $30 per car prevents the development of the field in which they operate.

The complaint shows that the lumber company railroad refuses to class itself as a carrier whose services can be required by any one at any time. It claims it is a private carrier and has no desire to stand around on the street corners holding itself out as being ready and willing to haul for anybody at any time. Presumably, just to show that it is a private and not a public or common carrier, the complaining oil men assert that every now and then it refuses to haul oil for them even under its contract with them calling for such service. In their petition to have the national law clapped on it, the producers declare it makes them accept special contracts for the service to be rendered.

They declare it does not treat other users of its line in that way but serves them just as if it were a common carrier, usually at about 10 cents per 100 pounds. The crude oil rate, at 15 cents per barrel, figures out about 5 cents per hundred.

Other declarations by the oil men are that while the lumber company was building its railroad, the Prescott & Northwestern applied to the federal authorities to build its lines into the oil field; that while that application was pending the lumber company appeared before the Interstate Commerce Commission and said it would serve the oil field as a common carrier but that after it had shut out competition it refused to become a common carrier, contrary to its promise. The oil men further declare that before completing its line to the oil wells, the lumber company compelled Smitherman & McDonald to enter into an oppressive, arbitrary, unreasonable and discriminatory contract and would not actually complete its railroad until it had executed the contract. It compelled similar contracts from the other producers before it would accept shipments.

The complaining oil men assert that the lumber road is operating in interstate commerce contrary to law, in that it has no certificate of convenience and necessity. They further declare that if through route and joint rate arrangements were required, by order of the commission, the lumber railroad would receive as a division from its connections as much money as it receives now for transportation to Reader and that they would have the benefit of the Smackover and El Dorado rates, on the hauls to the refineries.

There is a pretty law question involved in the case. The ordinary definition of a common carrier is one who holds himself out to carry for the public for hire. The lumber company protests that it does nothing of the kind but, as an incident to its business as a carrier of logs and forest products for itself, it carries for its neighbors but has no desire to devote its property to the service of the public generally; that is, subject itself to the rule that it must carry freight substantially in the order in which it is received, having due regard for the fact that some kinds of freight must be carried ahead of others, as for instance, perishable freight ahead of logs.

The fight, conceivably, may become of great interest to the producing end of the oil industry because new territory is usually developed in spots where railroad facilities do not exist, except for the development of some particular industry. As soon as the discovery well comes in the question how to get the oil out is one pressing for immediate disposition.

Of course, if the strike is a big one, the pipe line companies and trunk line railroads solve the problem quickly by extending their lines. However, in such instances as this one, where the production is comparatively small, it is an irritating one. Much of the time of the Interstate Commerce Commission is devoted to fights over oil rates and oil service. The road on which the oil originates thinks it should have a larger share of the money paid, or the delivering line looks at what its connections offer it, spits contemptuously and declares it will not take it.

Or the line between the originating and the delivering carrier is dissatisfied. Then the dissatisfied one undertakes to cancel the joint rates. The oil producers must then protest the cancellation and spend their money to get the fighting railroads into the tribunal that will settle the dispute of which they are the victims, in one form or another, usually in all forms.

Associated Buys Properties

HOUSTON, June 18.—Associated Oil Co. of the so-called Southern Pacific group, has purchased for a sum reported at $300,000 the Witherspoon Oil Co. properties in the Laredo district. These include a 20-mile pipe line from the Henne-Winch Faris pool on the Jim Hogg county boundary to tank car loading rack at Mirando City, about 90,000 barrels of steel storage capacity and 20,000 barrels of oil, besides three leases on which there are about 300 barrels daily production.

HERE AND THERE

George Millar, Jr., automotive lubrication engineer of the Tide Water Oil Sales Corp. western department at San Francisco, is in Oregon and Washington, giving illustrated lectures before Independent dealer associations, service clubs and Veedol dealers. He is presenting the five-reel picture, "The Story of Tide Water" in connection with his lectures on the large part played by petroleum in world progress, according to Harold R. Deal, western advertising manager.

* * *

G. E. Segelhurst, chief lubricating engineer of the Cities Service Oil Co., has been in Denver for the past week making a survey of a number of industrial plants, according to T. B. Hancock, manager at Denver.

* * *

John F. Conneally, with the Standard Oil Co. of New York at its Woonsocket, R. I. Branch, recently married Miss Helen Flynn of Millville, Mass.

M. C. Macomber, formerly of Chicago, has formed a new refining company at Kalamazoo, Mich., known as the Kalamazoo Paraffine Co. A paraffine wax plant is being built at Kalamazoo by the company.

L. W. Sutherland is president, F. W. Sutherland is secretary and treasurer, and Mr. Macomber is vice president.

* * *

H. S. Goodell, jobber of lube oils and greases at Hancock, Mich., has returned from Bradentown, Fla., with his family, where they spent the winter. They are now at their summer home at Eagle Harbor, Mich., according to Frank Fromm, manager for Mr. Goodell.

* * *

F. H. Dwyer, salesman for the Standard Oil Co. of Indiana at Huron, S. D., is landscaping the service station grounds at Highmore, S. D., which, when completed, will be without a peer along the Black and Yellow trail, according to reports.

A. G. Drake, formerly manager for the Hawkeye Oil Co., Waterloo, Ia. at its Des Moines, Ia. branch, is now district manager at Des Moines for the Black Hawk Oil Co., Waterloo, Ia. The latter company is just completing a bulk storage plant and service station at Des Moines.

* * *

William Graham, president of the High Grade Oil Co., Groton, S. D., is spending a few days at his cottage at Big Stone Lake and is, incidentally, endeavoring to establish a reputation as a fisherman, according to A. McTiver, secretary and treasurer.

* * *

F. M. Hahn, owner of the Independent Oil Co., Doland, S. D., is enjoying his own way as his wife and family are visiting for a month at Tomah, Wis.

* * *

Humphrey & Metcalf bought Mr. Wallace's interest in the Clearmont company, according to W. T. Humphrey.

* * *

W. C. Pettingell, familiarly known as "Pet," who is sales manager of the western department of the Tide Water Oil Sales Corp. at San Francisco, has been in the Pacific northwest country, endeavoring to improve Veedol service

Current Statistics in Crude and Refined Products

BELOW are given monthly production and consumption and stocks of crude oil and principal refined products for 1924 and as far into 1925 as figures are available. Crude figures are from the Geological Survey and those on refined products from the Bureau of Mines. Imports of crude oil have been taken with domestic production monthly to show total production. Imports of refined products have not been included in production of these commodities because of their small volume. In all cases exports are included with domestic demand to give total consumption. Stocks of crude include tank farm and pipe line stocks, also stocks at refineries.

	CRUDE (Barrels)			GASOLINE (Gallons)			KEROSENE (Gallons)		
1924	Domestic Production and Imports	Domestic Consumption and Exports	Stocks (End of Mo.) plus stocks at Refineries	Production	Consumption Plus Exports	Stocks (End of Mo.)	Production	Consumption Plus Exports	Stocks (End of Mo.)
Jan.	62,758,000	63,742,000	367,614,781	695,322,500	589,243,696	1,200,287,779	217,767,931	200,718,885	300,265,249
Feb.	61,965,000	60,786,000	372,215,640	683,736,103	506,249,921	1,383,383,889	196,826,060	190,388,378	306,727,001
Mar.	68,320,000	64,686,000	337,549,332	743,248,292	552,271,145	1,587,584,872	200,038,627	176,776,602	330,009,861
Apr.	66,730,000	63,306,000	381,446,152	754,773,232	724,116,274	1,625,869,129	203,185,921	244,287,597	288,964,972
May	69,046,000	64,196,000	387,156,912	779,194,019	769,375,090	1,649,953,755	199,992,393	184,998,681	304,005,726
June	65,952,000	61,460,000	391,718,019	737,080,701	802,005,163	1,598,858,219	183,141,014	193,839,448	293,322,967
July	67,585,000	62,523,000	396,209,931	741,974,813	877,463,694	1,470,923,201	194,201,141	186,431,991	301,157,349
Aug.	67,566,000	60,684,000	403,620,790	755,779,688	937,288,422	1,311,020,845	204,106,726	201,134,205	304,136,230
Sept.	64,965,000	64,230,000	405,248,800	750,264,418	834,896,658	1,229,605,883	211,830,320	218,224,459	297,748,681
Oct.	64,810,000	66,089,000	402,693,191	760,646,784	846,991,778	1,152,374,287	232,665,935	225,268,138	308,124,602
Nov.	62,964,000	65,645,000	400,061,897	762,046,475	796,210,328	1,133,168,656	233,520,679	204,233,500	337,448,021
Dec.	62,458,000	69,204,000	393,891,185	795,613,195	763,987,295	1,179,503,185	243,831,817	242,534,111	338,825,779
Total	785,119,000	766,551,000		8,959,680,220	9,000,099,459		2,521,108,564	2,468,835,995	
1925									
Jan.	66,544,000	67,748,000	391,233,000	831,652,370	695,367,441	1,330,235,880	247,726,852	208,026,990	378,598,381
Feb.	59,625,000	59,199,000	392,029,000	790,441,679	645,568,287	1,487,142,423	214,421,091	173,512,027	419,581,895
Mar.	66,808,000	66,416,000	392,373,000	853,574,214	744,391,334	1,610,868,168	219,908,447	198,661,588	440,870,013
Apr.	66,522,000	66,679,000	392,153,000	860,492,115	920,599,574	1,561,002,024	201,163,079	222,255,423	419,849,967

	GAS & FUEL OIL (Gallons)			LUBRICANTS (Gallons)			WAXES (Pounds)		
1924	Output	Consumption Plus Exports	Stocks (End of Mo.)	Production	Consumption Plus Exports	Stocks (End of Mo.)	Production	Consumption Plus Exports	Stocks (End of Mo.)
Jan.	1,062,892,393	1,142,854,015	1,471,544,338	94,534,650	94,098,508	243,224,109	42,523,461		144,849,698
Feb.	1,025,421,651	1,065,623,174	1,491,173,016	93,824,414	83,235,708	253,845,881	43,161,872		129,094,006
Mar.	1,114,411,725	1,166,740,354	1,487,463,907	101,126,865	105,212,656	249,789,026	47,597,495		125,016,587
Apr.	1,116,763,663	1,109,716,690	1,536,337,206	96,966,565	95,726,764	251,047,444	45,960,145		111,009,436
May	1,155,935,780	1,200,240,293	1,555,662,866	104,438,537	111,976,994	243,732,406	47,417,996		112,948,299
June	1,106,711,936	1,089,619,134	1,618,563,529	96,994,523	92,167,922	248,585,972	40,319,313		108,139,905
July	1,102,785,843	1,168,564,677	1,605,951,484	87,489,694	90,504,086	245,625,869	38,198,135	41,720,208	107,799,783
Aug.	1,167,211,159	1,164,313,462	1,658,670,957	92,761,392	95,639,010	242,752,892	39,341,374	45,199,255	103,219,860
Sept.	1,113,911,361	1,156,873,827	1,639,868,896	90,227,655	89,099,245	243,882,827	35,184,791	51,668,513	98,190,188
Oct.	1,160,683,355	1,230,103,528	1,611,585,894	97,223,404	93,118,511	247,998,498	40,924,224	48,963,777	91,077,241
Nov.	1,134,146,744	1,136,909,245	1,641,089,969	94,947,882	100,724,129	242,246,054	43,002,675	42,169,325	92,676,238
Dec.	1,199,093,235	1,215,863,389	1,670,508,938	104,391,096	89,323,963	257,336,238	52,859,199	56,374,682	89,666,408
Total	13,459,968,845	13,847,421,788		1,154,926,677	1,140,827,496		516,490,680		
1925									
Jan.	1,171,402,042	1,266,469,176	1,619,688,131	103,164,250	91,859,239	268,699,396	54,310,455	56,036,568	88,970,109
Feb.	1,058,724,840	1,098,862,473	1,639,105,022	100,502,790	93,976,091	275,258,365	47,812,111	48,832,412	89,299,300
Mar.	1,208,905,619	1,250,806,822	1,647,523,327	118,493,938	103,770,916	290,055,409	53,642,442	48,305,623	95,061,076
Apr.	1,230,321,781	1,188,039,523	1,736,994,662	107,095,869	108,101,154	285,419,655	48,867,521	41,089,821	103,286,737

to care for increasing business in that section. Since the opening of the new Tide Water offices at Seattle, business has been on the increase and Sales Supervisor Jack Biehn has kept busy scheduling boat loads of Veedol products from the Bayonne, N. J. refinery, according to Harold R. Deal, western advertising manager.

"Cy" Pruner, district manager at Portland, has increased his delivery facilities.

In addition to the company's national and outdoor advertising program, an extensive newspaper advertising campaign throughout the western coast has been started.

* * *

A baby girl, Barbara Lee, weighing 8¾ pounds, was recently born to Mr. and Mrs. Roy Burkett, Omaha, Neb. Mr. Burkett is with the Skelly Oil Co. here.

* * *

Ross Wallace, who until recently held an interest in the Clearmont Oil Co., Clearmont, Mo., has left for a motor trip to California with Mrs. Wallace.

* * *

St. Lawrence, S. D.—R. H. McKee building service station, to be operated in connection with Old Trail Garage.

* * *

Stephen Walker, oil operator at Breckenridge, Tex., territory, has just been made mayor of Breckenridge.

Refinery Map Available At $2

TULSA, June 18.—Because of the big demand for copies of the United States map showing all refineries in the country, the Western Petroleum Refiners Association has placed a charge of $2 on the maps to cover cost of printing and distribution, it was announced today by Howard Bennette, managing director. The map is based on the latest refinery list published by the Bureau of Mines and outlines established marketing territories.

Virginia Marketer To Build Station

ONLEY, VA., June 18.—This territory, which is a part of the very small peninsula known as the eastern shore of Virginia, is now covered by seven oil companies instead of two as previously. H. C. Watson, marketer of The Texas Co.'s products, has completed a filling station at Exmore, Northampton **county** Va.

Mr. Watson expects to erect another station, in Accomac county, site for which has already been purchased, according to Miss Louise Savage, secretary.

CASPER, WYO., June 18.—John McFadyen, general manager of the Ohio Oil Co. in the Rocky Mountain territory, has returned from Findlay, O., general offices of the company. Mr. McFadyen was elected a director at the recent annual meeting. He has been with the company for 31 years, a considerable part of which was spent in the Lima-Indiana fields.

KANOTEX

In addition to their high quality

KANOTEX Petroleum Products

appeal to Jobbers because of these two facts:

FIRST: We are independent refiners.

SECOND: We do not maintain filling stations of our own. Thus the full facilities of the KANOTEX organization are devoted to serving KANOTEX customers.

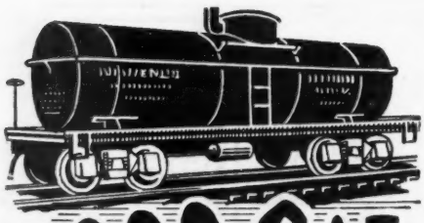
A. F. MORRISON, *Sales Manager*
Phone 504 and 505

The Kanotex Refining Co.
Arkansas City, Kansas

ADVANCE
Cold Tested Gerene
For Transmission and Differential Gears

The gear lubricant that is guaranteed to lubricate efficiently under extreme cold condition. In your next order specify Advance Cold Tested Gerene.

AMERICAN
Oil Corporation
Jackson, Mich.



8000 GAL. Car Unloaded in Less Than 2½ hrs.

Just the pump you want for your unloading station. Simple in construction, easy to install and easy to operate.

Only 2-Pump Outfit on a Single Base

Two pumps are permanently mounted on a single one-piece cast iron base, with power jack attached. One power equipment for pumping two kinds of fuel. Will operate without vibration on any kind of a foundation.

Cast iron base under pumps forms oil pan which is tapped for drain pipe, insuring a safer and cleaner pump house.

Plunger, slow speed, and packed with special cup leathers. A special safety feature, since with any pump some air is pumped with gasoline when tank is almost empty.

Either pump may be connected to the cross-head by two machine bolts and operated separately or together.

Write for Special Oil Pump and Oil Supplies Catalogs.

Dempster Mill Mfg. Co.

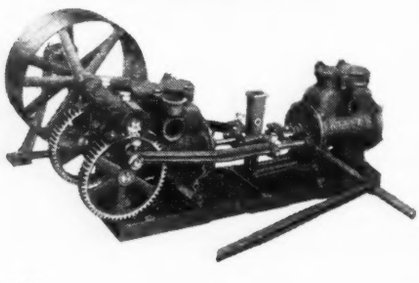
Main Offices and Factory
726 S. Sixth St., Beatrice, Nebr.

Branches: Oklahoma City, Okla.; Denver, Colo. Kansas City, Mo. Omaha, Nebr. Sioux Falls, S. D. Amarillo, Texas

Distributors: Sharpsville Boiler Works Co. Sharpsville, Pa.

Builders of satisfactory pumps and pumping equipment for over 40 years.

DEMPSTER OIL PUMPS



"All That Glitters Is Not Gold" .... But the BRIGHT, SNAPPY Golden Colors of

KEEN & WOOLF LUBRICATING OILS

are golden in quality

Many responsible jobbers throughout the country have built up their business on Keen and Woolf quality—Because THE FILLING STATION TRADE LIKES THIS SUPERIOR "LUBE."

Carefully Refined from Best Coastal Crudes

KEEN & WOOLF OIL CO.
HOUSTON, TEXAS

"National" Guaranteed COUPON BOOKS

have the official recognition of National Petroleum Marketers Ass'n

Write for Samples and Prices to

NATIONAL CHECKING CO.
St. Paul - - Minn.

ON THE LAZY BENCH

Dealing in Scotland

A Scottish farmer sold some eggs to the local laird. He discovered that he had included one egg too many in the consignment, and went at once to the laird, who said laughingly that it wasn't really worth all this fuss.

"You may be right," said the laird, "but, anyway, have a drink and call it square. What will you take?"

"Egg and milk," snapped the Scotsman.

—Derby Spirit

◈ ◈ ◈

An American gentleman in dear old London was bragging about his car. He ended his eulogy by declaring:

"It runs so smoothly you can't feel it, so quietly you can't hear it, has such perfect ignition you can't smell it, and as for speed—boy, you can't see it."

"But, my word, old dear," interrupted the Briton, anxiously "how do you know the bally thing is there?"

—The Ioco Times

◈ ◈ ◈

No Ribbons for Her

"Say George," said the young business man to his friend, "where do you buy your typewriter ribbons?"

"I don't," replied the other, without thinking; "I usually buy her flowers."

—Derby Spirit

◈ ◈ ◈

He phoned his fiancee on her birthday that he was sending her a rose for every year. To the florist he gave the order for two dozen.

"He's a good customer," thought the florist, "and I'll send along an extra dozen."

That's how the engagement was wrecked. —The Booster

◈ ◈ ◈

Dad Decided

"If a fairy should appear to you and offer you three wishes, what would you do?"

"I'd sign the pledge."

—Derby Spirit

◈ ◈ ◈

Painting the Landscape

"My, I see you've struck oil," she said. "It's all around the rig."

"That ain't oil," replied the driller, "it's tobacco juice." —Pure Oil News

◈ ◈ ◈

Traffic Cop: "Come. What is the matter with you?"

Truck Driver: "I'm well, thanks; but me engine's dead."

—Marland Service Man

Quick Together, Quick Apart

A certain automobile manufacturer, who advertised that he had put one of his cars together in just seven minutes, was rung up on the phone and asked if it were true.

"Yes," was his answer. "Why?"

"Oh, nothing. Only I believe I have that car."

—The Ioco Times

◈ ◈ ◈

Handicapped

"Poor ole Bill! 'E's so shortsighted 'e's working 'imself to death."

"Wot's 'is short-sight got to do with it?" "Well, 'e can't see when the boss ain't looking, so 'e 'as to keep on shoveling all the time."

—Bottles

◈ ◈ ◈

"Father, freight is goods that are sent by water or land, isn't it?"

"That's right, son."

"Well, why is it that the freight that goes by ship is called a cargo, and when it goes by car it is called a shipment?"

Then father went outside to get the air. —Pure Oil News

◈ ◈ ◈

The Sign Says So

She: "What makes you think Jones is tired of his wife?"

He: "Sign in front of his house says, 'Honey for Sale.'"

—Marland Service Man

◈ ◈ ◈

Harsh Words

Over-gushing Hostess: "Such a dear man the new vicar is—so outspoken. In his sermon last Sunday he censured the Devil most severely!"

—The Ioco Times

◈ ◈ ◈

Merely Ornamental

"They tell me you have a model husband, Mrs. Hicks."

"Yus, sir, but 'e ain't a workin' model."

—The Ioco Times

◈ ◈ ◈

Elderly doctor (with his hand on the door knob): "Let me know if that prescription does any good. I'm troubled now and then with rheumatism, myself."

—Derby Spirit

◈ ◈ ◈

Autoist: "I haven't paid a cent for repairs on my machine all the ten months I have had it."

Friend: "So the man who did the repairs told me."

—Bottles

PETROLEUM
and its Products

WRITE OR WIRE
FOR QUOTATIONS

Marietta, Ohio Refinery
operated on Pennsylvania Crude

Findlay, Ohio Refinery
operated on Ohio Crude

Coffeyville, Kansas Refinery
operated on Midcontinent Crude

The
NATIONAL REFINING Co.
National Headquarters
NATIONAL BLDG.
CLEVELAND OHIO

3 MODERN REFINERIES
COFFEYVILLE, KAN.-FINDLAY, O.
MARIETTA, O.

A restful night on Lake Erie

Makes a pleasant break in your journey. A good bed in a clean, cool stateroom, a long sound sleep and an appetizing breakfast in the morning.

Steamers "SEEANDBEE" "CITY OF ERIE" "CITY OF BUFFALO"

Daily, May 1st to November 15th

Leave Cleveland . . . —9:00 P.M.
Arrive Buffalo . . . . —*7:00 A.M.
Leave Buffalo . . . . —9:00 P.M.
Arrive Cleveland . . . *7:00 A.M.
Eastern Standard Time

*Steamer "CITY OF BUFFALO" arrives 7:30 A.M.

Connection for Niagara Falls, Eastern and Canadian points; Cedar Point, Put-in-Bay, Toledo, Detroit, and points west. Ask your ticket agent or tourist agency for tickets via C & B Line. New Tourist Automobile Rate, $7.50.

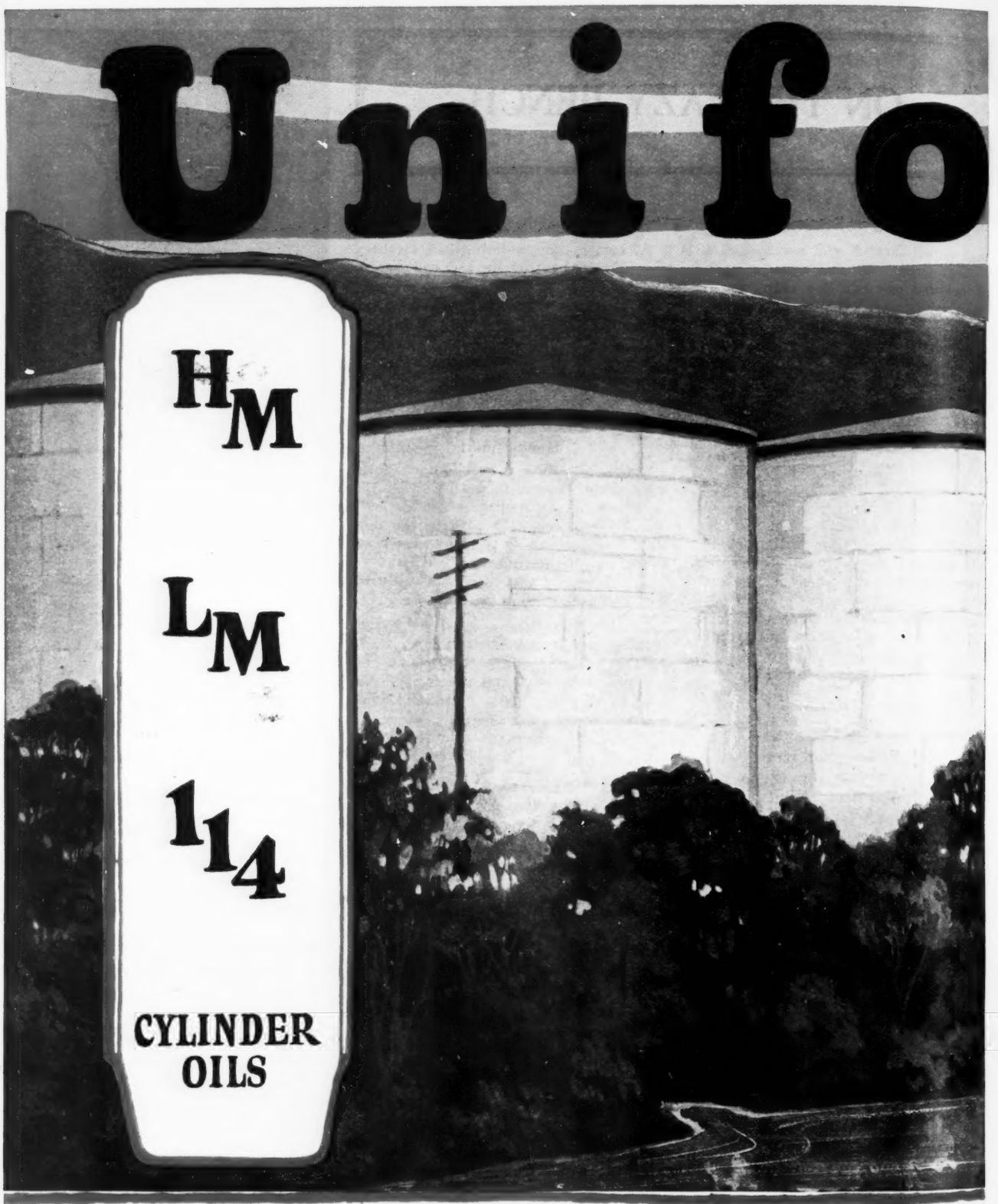
Send for free sectional Puzzle chart of the Great Ship "Seeandbee" and 32-page booklet.

The Cleveland & Buffalo Transit Co., Cleveland, Ohio

Fare $5.50

Your rail ticket is good on the boat.

The Great Ship "SEEANDBEE"—Length, 500 ft. Breadth, 98 ft., 6 inches



CONEWANGO

From the Heart of Pennsylvania

QUALITY OIL HEADQUARTERS SINCE 1900

REFINERY-TANK WAGON MARKETS

Group 3 Gasoline Market Steady At 13 Cents For Third Week

Staff Special
TULSA, June 22

TO THE unfortunate who has just passed through a tornado, a 50 mile wind would seem like a gentle breeze.

In somewhat the same manner refinery sales managers have complained about the slowness of the gasoline market during the last week, comparing it with the tremendous rush of business that came with the heat wave of early June. Movement of gasoline from Mid-Continent plants has continued at a high rate but the flow of new business into the field has not been enough to keep prices climbing.

Yesterday and today the market has been showing more life. Bell Oil & Gas Co. late Thursday bought around 120 cars of U. S. Motor for prompt shipment to domestic consumers and jobbers began on Friday to exhibit considerable interest in their supply of gasoline for July. Because of the increasing number of inquiries in the last few days it is generally predicted that the last week in June will bring on another rush of buying to replenish tanks which are expected to be depleted by thirsty motor cars on the Fourth of July week-end holidays.

Demand Usually Heavy

It is the experience of refiners that when a holiday comes along at the end of a summer week that gasoline consumption takes a big jump and that orders are heavy both before and after the holidays. That was particularly true during the hot weather at Memorial Day time.

Although the market has been characterized as slow the lagging tendency has been confined entirely to spot purchases. Contract gasoline has been moving at the summer maximum. Jobbers have been taking out every car allowed and have been seeking to get more than their contracts call for. The Mid-Continent Petroleum Corp. (Cosden) has been shipping an average of more than 100 cars of gasoline per day during the first three weeks of June. If that rate is maintained during the next 10 days the company will have shipped 3000 cars in June or around 24,000,000 gallons.

It is not difficult to understand why jobbers are anxious to get as much gasoline as they can on their marginal contracts. The average marginal contract today is netting the Mid-Continent refiner a little less than 11½ cents per gallon which is 1½ cent per gallon less than the spot market.

Narrow Margins

Low tank wagon prices in Indiana and Ohio territories present a real reason why spot buying is on a hand-to-mouth basis. In the following table the situation at nine principal points in the Mid-Continent trade territory is clearly shown:

City	Net T. W.	Freight from Group 3 in Cents per Gal.	Delivered Price U. S. Motor Gasoline @ 13 cents	Jobber Margin
Chicago	*17	2.37	15.37	1.63
Peoria	18.2	2.17	15.17	3.03
Des Moines	18.5	2.17	15.17	3.06
Minneapolis	19.2	2.83	15.83	3.37
Milwaukee	18.1	2.60	15.60	2.50
Indianapolis	18.2	2.77	15.77	2.43
Cleveland	18.5	3.69	16.69	1.81
Cincinnati	18.5	3.39	16.39	2.11
St. Louis	17.1	1.94	14.94	2.16
Average margin at 9 cities				2.45

*Price on dumps of 100 gallons and over.

Even efficient jobbers contend that they must have a margin of at least 3½ cents per gallon to make a profit on handling gasoline. In that case dealers that are not protected by marginal contracts for a rather large percentage of their requirements would be losing on their current operations. It can be readily appreciated that under such conditions they will not buy far in advance of their current needs, particularly if they have any idea that there is a chance for the spot market to slip off even ¼ cent per gallon.

Prices Are Steady

For the last 20 days U. S. Motor gasoline has been selling in Group 3 almost at a flat price of 13 cents per gallon. The market has been steadier at a single price than it has been over any similar term for many months. Some gasoline has sold as high as 13¼ cents per gallon over most of this period and there have been times when it has been possible to buy small quantities at 12¾ cents per gallon. Most of the time the gasoline price in Group 3 is either going up or going down. It is rare when the price over nearly a month does not vary more than ¼ cent either way from a given figure.

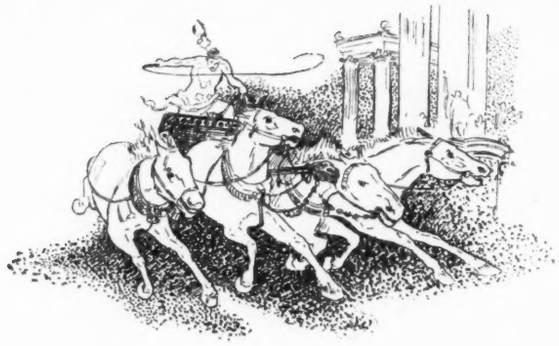
There appears to be a very definite reason why the market is as stable as it has been this month. The foregoing table which shows how narrow jobber margins have become, is one excellent reason why gasoline has not advanced beyond its present level. Jobbers are losing money on spot gasoline and will resist advance to the best of their ability unless there is an advance in the tank wagon price. Gasoline stocks in the Mid-Continent are extremely low. The reports of 124 refiners to National Petroleum News for the week ended June 12 showed that stocks represented only 12 days' supply at their current rate of shipment. In other words, refiners are operating on just as much a hand-to-mouth basis as jobbers. With such a condition present it appears unlikely

(Continued on page 157)

All prices and market information printed herein have been gathered by the staff of National Petroleum News from reliable sources and so far as can be ascertained thoroughly represent the going market as defined for each product on the date given for those particular prices. Both buyers and sellers have been checked in the gathering of this information and actual sales studied.

These prices and this information are subject at all times to correction for errors. Anyone having knowledge of any facts which would indicate anything different from the information which is given, is especially urged to send in those facts to the head office of National Petroleum News at once, or take them up with the nearest representative. All such facts will be promptly and thoroughly investigated.

The staff of National Petroleum News is cognizant of the fact that this market information has come to have a high standing in the industry. It wants to not only maintain that standing, but to improve it and to that end, invites the co-operation of the entire oil industry.

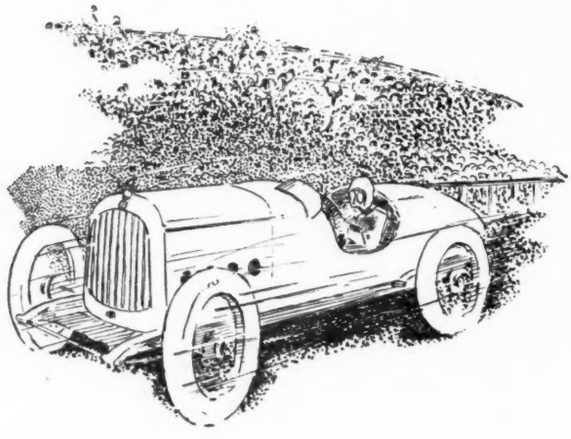


HORSE POWER

From the days when Ben Hur drove his four milk-white Arabians to a glorious victory, the advancement of civilization has depended upon horse power.

Then it was the question of super breeds of equine flesh, but today horse power means something different - it means modern gasoline motors, developed to the highest mechanical perfection.

These modern motors demand good gasoline. The best gasoline contains a large percentage of "Natural Gasoline", which gives it greater power and efficiency.



CHESTNUT & SMITH
CORPORATION

GENERAL OFFICES CHESTNUT & SMITH BLDG.
TULSA, OKLAHOMA.

Refinery Markets on Light Oils and Lubricants

Pennsylvania, Oklahoma, North and South Texas, Louisiana, Arkansas, Californi

GASOLINE AND NAPHTHA

	Prices June 22	Prices June 15	Prices June 8
PENNSYLVANIA			
48-54 Naphtha	15¼-15½	15¼-15¾	15¼-15¾
54-58 Naphtha	15½-15¾	15½-15¾	15¾-16
58-60 Gasoline	16 -16¼	16 -16¼	16¾-16½
60-62 Straight-run gasoline	16¾-17	17 -17¼	17 -17½
62-64 Straight-run gasoline	17½-18	17¾-18	17½-18
64-66 Straight-run gasoline	18¼-18½	18¾-19	18 -18½
66-70 Straight-run gas. 350 E.P.	19 -20	19½-20	18½-19
66-70 Straight-run gas. 305-320 E.P.	20½-21	20½-21	20½-21
70-72 Straight-run gas. 300-305 E.P.	22 -23	-22	-22
OKLAHOMA			
48-50 450 E. P. naphtha	11¾-12	11¾-12	11¾-12
50-58 450 E. P. naphtha	-12	-12	-12
56-58 450 E. P. gasoline	-12½	12½-12¾	12½ 12¾
58-60 U.S. Motor 437E.P.	-13	-13	-13
60-62 400 E. P. gasoline	-14½	-14½	14¼-14½
64-66 375 E. P. gasoline	-15½	-15½	-15¼
66-70 350 E. P. gasoline	15¾-16	-15¾	15½-15¾
NORTH TEXAS			
48-52 450 E. P. naphtha	11¾-11¾	11¾-11½	11¾-11¾
56-58 450 E. P. gasoline	12⅝-12¾	12⅜-12⅝	12⅜ 12¾
58-60 450 E. P. gasoline	12¾-12⅞	12½-12¾	12¾-12⅞
58-60 U. S. Motor gasoline	-13	12¾-13	-13
60-62 400 E. P. gasoline	14¼-14½	14¼-14½	-14¼
64-66 390 E. P. gasoline	14¾-15	14¾-15	14¾-15
64-66 375 E. P. gasoline	15⅜-15½	15⅜-15½	-15¼
66-70 350 E. P. gasoline	15¾-16	15¾-16	15½-15¾
NORTH LOUISIANA			
58-60 437 U. S. Motor gasoline	-13½	-13¼	13¼-13½
64-66 375 E. P. gasoline			15½-15¾
ARKANSAS			
58-60 450 E. P. gasoline	13¼-13½	13¼-13⅜	13¼-13½
58-60 U. S. Motor gasoline	13½-13¾	13½-13¾	13½-13¾
64-66 375 E. P. gasoline	16 -16¼	16 -16¼	-15¾
CALIFORNIA			
54-56 U. S. Motor gasoline	-11	-11	-11
42-45 Engine distillate, 445-480E.P.	7½- 9½	7½- 9½	7½- 9½

Note: This is without the 2-cent state tax included in the price of California refiners for shipments within the state.

NEW ENGLAND
(F. O. B. Boston and Fall River)

U. S. Motor gasoline	-15¾	-15¾	-15½

NATURAL GASOLINE

OKLAHOMA			
Grade Double A	-15¾	15½-15¾	-15½
Grade A	-15¾	15½-15¾	-15½
Grade Double B	-15¾	15½-15¾	-15½
Grade B	-15¾	15½-15¾	-15½
Grade C	-15¾	15½-15¾	-15½

NOTE—Specifications adopted by Ass'n of Nat. Gaso. Manufacturers:
Grade Double A—80-87.9 gravity, 90% recovery, not over 375 E. P.
Grade A—72-79.9 gravity, 90% recovery, not over 375 E. P.
Grade Double B—84-92 gravity, 85% recovery, not over 375 E. P.
Grade B—76-83.9 gravity, 85% recovery, not over 375 E. P.
Grade C—80-90 gravity, 78% recovery, not over 375 E. P.

NORTH TEXAS			
*Grade Double A	-15¾	15½-15¾	-15½
*Grade A	-15¾	15½-15¾	-15½
*Grade Double B	-15¾	15½-15¾	-15½
*Grade B	-15¾	15½-15¾	-15½
Grade C	-15¾	15½-15¾	-15½

*F. O. B. Breckenridge.

CALIFORNIA			
73-78 375 E. P.	13 -13½	13 -13½	13 -13½
OKLAHOMA NATURAL GASOLINE—BLENDS			
64-66 435-440 E. P.	-13¾	-13½	12¾-13
NORTH TEXAS			
64-66 435-440 E. P.	13¼-13½	13¼-13½	12¾-13
PENNSYLVANIA			
68-70 Grav. 437 E. P.	16 -16¼	-17	-16½
64-66 Grav. 437 E. P.	16 -16½	-16¾	-16½
60-62 Grav. 437 E. P.	16 -16½	-16¾	-16½
68-70 Grav 420 E. P.	16½-16¾	-17¼	-17
68-70 Grav. 400 E. P.	17 -17¼	-17¾	-17½

BURNING OILS

PENNSYLVANIA			
45 Water White Kerosene	6¼- 6½	6¼- 6¾	6¼- 6¾
46 Water White Kerosene	6⅞- 7	7 - 7¼	7 - 7¼
47 Water White Kerosene	7½- 7¾	7¾- 8	7¾- 8
300 Burning Oil	- 7¾	7¾- 8	7¾- 8
OKLAHOMA			
40-42 Prime White Distillate	3⅝- 3¾	3⅝- 3¾	3¾- 4
41-43 Water White Kerosene	4 - 4¼	4⅛- 4⅜	4¼- 4⅜
43-44 Water White Kerosene	4⅜- 4⅝	4⅜- 4⅝	- 4¾
NORTH TEXAS			
41-43 Water White Kerosene	4¼- 4⅜	4¼- 4⅜	4¼- 4⅜
43-44 Water White Kerosene	4⅜- 4⅝	4⅜- 4⅝	4⅜- 4¾
NORTH LOUISIANA			
41-43 Water White Kerosene	4¾- 5	4¾- 5	4¾- 5
ARKANSAS			
43-44 Water White Kerosene	4¾- 5	5 - 5¼	5 - 5¼
CALIFORNIA			
40-42 Water White Kerosene	7½- 8	7½- 8	7½- 8
NEW ENGLAND			
(F. O. B. Boston and Fall River)			
40-43 Water White Kerosene	- 7	- 7⅛	- 7

NEUTRAL OILS

	Prices June 22	Prices June 15	Prices June 8
PENNSYLVANIA			
(Viscosity at 70 °F.)			
220 Vis. No. 3 Assoc. Filt.	-27½	-27	-27
200 Vis. No. 3 Assoc. Filt.	24½-25	24 -25	24 -25
180 Vis. No. 3 Assoc. Filt.	22½-23	22 -23	22 -22½
150 Vis. No. 3 Assoc. Filt.	20 -20½	20 -20½	20 -20½
(Non-Viscous)			
34 Grav. 350-360 Flash	8 - 8¼	8 - 8¼	7¾- 8¼
36 Miners Neutrals 300-305 Flash	7 - 7¼	7¼- 7½	7 - 7¼
OKLAHOMA			
(Viscosity at 100 °F.)			
70 Vis. No. 2½-3 color	6 - 6¼	6 - 6¼	6 - 6¼
100 Vis. No. 2 color	6 - 6¼	6 - 6¼	6 - 6¼
100 Vis. No. 2½-3 color	5¾- 7¼	5¾- 7¼	5¾- 7¼
150 Vis. No. 3 color	10¾-11	10¾-11	10¾-11
150 Vis. No. 4 color	10½-10¾	10½-10¾	10½-10¾
180 Vis. No. 3 color	11¼-11¾	11¼-11¾	11¼-11¾
180 Vis. No. 4 color	11 -11¼	11 -11¼	11 -11¼
180 Vis. No. 5 color	10 -11	10 -11	10 -11
200 Vis. No. 3 color	11½-12	11½-12	11½-12
200 Vis. No. 4 color	12 -12¼	12 -12¼	12 -12¼
200 Vis. No. 5 color	11 -12	11 -12	11 -12
220 Vis. No. 3 color	14¼-14	14¼-14	14¼-14
220 Vis. No. 4 color	14¼-14¾	14¼-14¾	14¼-14¾
220 Vis. No. 5 color	13 -14	13 -14	13 -14
240 Vis. No. 3 color	16 -16¼	16 -16¼	16 -16¼
240 Vis. No. 4 color	15¾-16	15¾-16	15¾-16
240 Vis. No. 5 color	15 -15¼	15 -15¼	15 -15¼
280 Vis. No. 3 color	17¾-18	17¾-18	17¾-18
280 Vis. No. 4 color	16¾-17	16¾-17	16¾-17
280 Vis. No. 5 color	15¾-16	15¾-16	15¾-16
300 Vis. No. 5-6 color	18 -18¼	18 -18¼	18 -18¼
GULF COASTAL			
(Viscosity at 100 °F; cold test 0)			
100 Vis. No. 2 Color Unfilt. Pale	8½- 9	8½- 9	8½- 9
200 Vis. No. 3 Color Unfilt. Pale	12½-13½	12½-13½	12½-13½
300 Vis. No. 3 Color Unfilt. Pale	15½-16	15 -15½	15 -15½
500 Vis. No. 3½ Color Unfilt. Pale	17½-18	17 -17½	17 -17½
750 Vis. No. 4 Color Unfilt. Pale	22½-23	22½-23	22½-23
200 Vis. No. 5½ Color Red Oil	12 -12½	11½-12	11½-12
300 Vis. No. 5½ Color Red Oil	14 -14½	13½-14	13½-14
500 Vis. No. 6 Color Red Oil	15 -15½	15½-16	15½-16
750 Vis. No. 6 Color Red Oil	20 -20½	19½-20½	19½-20½
CALIFORNIA			
(Viscosity at 100 °F.)			
100 Vis. No. 2 color	13½-14½	13½-14½	13½-14½
100 Vis. No. 3 color	9 -10	9 -10	9 -10
200 Vis. No. 3 color	14½-15½	14½-15½	14½-15½
300 Vis. No. 3 color	14 -16	14 -16	14 -16
450 Vis. No. 3½ color	19½-20½	19½-20½	19½-20½
550 Vis. No. 3 color	21½-22½	21½-22½	21½-22½
600 Vis. No. 3½ color	23½-24½	23½-24½	23½-24½
100 Vis. No. 5 color	8 - 9	8 - 9	8 - 9
200 Vis. No. 5 color	13½-14½	13½-14½	13½-14½
300 Vis. No. 5 color	14 -15	14 -15	14 -15
400 Vis. No. 5 color	16 -17	16 -17	16 -17
500 Vis. No. 5 color	17 -18	17 -18	17 -18
600 Vis. No. 6 color	18 -19	18 -19	18 -19
700 Vis. No. 7 color	19½-20½	19½-20½	19½-20½

CYLINDER STOCKS

OKLAHOMA			
190-200 Vis. at 210° Bright Stock	31 -36	31 -36	31 -36
150-160 Vis. at 210° Bright Stock	28 -32	28 -32	28 -32
600 E Stock, 140-150 Vis. @ 210°	18¼-20	18¼-20	18¼-20
600 Steam Refined Olive Green	8 -11	8 -11	9 -11
600 Steam Refined Dark Green	6 - 6½	6 - 6½	6 - 6½
Black Oil	4¾- 5	4¾- 5	4¾- 5
PENNSYLVANIA			
(1-inch Immersion Test)			
600 Steam Refined	19½-20	20½-21	-20½
635 Steam Refined	24½ 25	24½-25½	24½-25½
650 Steam Refined	26½-27	26 -27	26½-27½
600 Flash	29½ 30	30 -31	30 -31
600 Warren E	24 -24½	-24½	-24½
600 Oil City E	23½-24	-23½	-23½
600 Filtered D	-29	29½-30	-30
Cold Test Stocks (bright filtered)	39 -40	-40	39½-40
Cold Test Stock (dark filtered)	37 -38	37 -38	37 -38
Black Oil	- 8	8 - 8¼	8¼- 8¼

(Note—Prices of total immersion test goods average 1 to 2 cents per gallon higher.)

Above prices are f. o. b. refinery in tank car. They are the prices at which the bulk of the products on the open market move. Whoever has knowledge of any open market prices on any considerable quantity of goods differing from the foregoing, will favor us with this information.

EMPIRE

You'll find the refined

superiority of Empire Oils in *every drop.*

Refined with uniform care from Pure Pennsylvania Crude base. Every ounce of Empire Oils test rare quality, *uniform* quality. The best by test every time.

High test service on orders large or small. Wire, write or telephone.

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EMPIRE OIL & GREASE COMPANY

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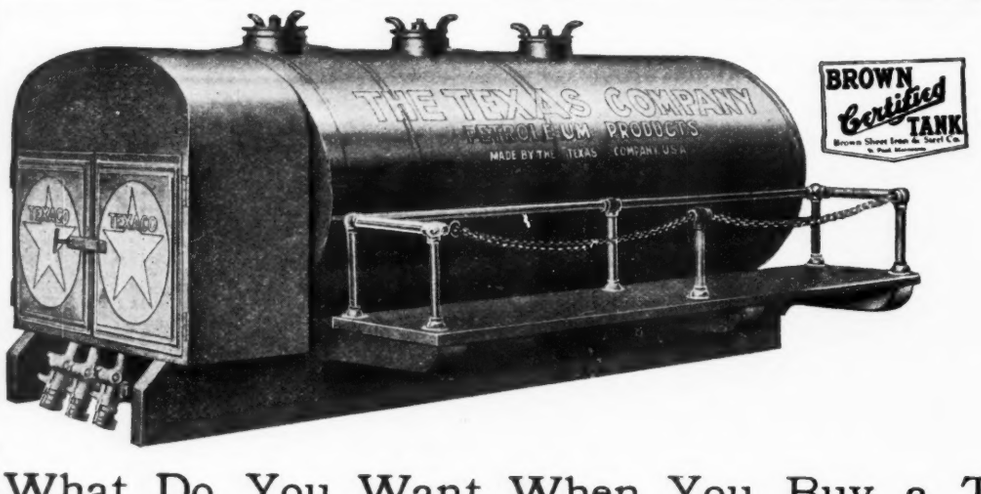
Pittsburgh: 107 West Parkway.

Oil City, Pa.
Refinery: Reno, Pa.

Warehouses:
Pittsburgh, Pa.
Ashtabula, Ohio.
Barnesville, Ohio.



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BROWN SHEET IRON & STEEL CO.

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1001 Berry Ave. **St. Paul, Minn.**

LICENSED MANUFACTURERS OF VAN TILBURG RECTIFYING PROCESS

Refinery Markets on Wax and Heavy Oil Products

Pennsylvania, Oklahoma, North anb South Texas, Louisiana, Arkansas, California

WAX

PENNSYLVANIA	Prices June 22	Prices June 15	Prices June 8
	(Per Pound New York)		
122-124 White Crude Scale.	5¼- 5⅜	5¼- 5⅜	5¼- 5½
124-126 White Crude Scale.	5⅜- 5½	5⅜- 5½	5½- 5¾
OKLAHOMA	(Per Pound Group 3)		
124-126 White Crude Scale.	5 - 5¼	- 5¼	- 5¼
CALIFORNIA			
White Crude Scale.....	7½- 8	7½- 8	7½- 8

FUEL OIL

PENNSYLVANIA			
36-40 Fuel Oil.....	6¼- 6½	6¼- 6½	6¼- 6½
30-34 Fuel Oil.....	5⅜- 5½	5¼- 5½	5¼- 5½
28-30 Fuel Oil.....	5 - 5¼	5¼- 5½	5¼- 5½
OKLAHOMA			
38-40 Straw distillate.....	3¼- 3⅜	3⅛- 3⅜	3¼- 3⅜
36-38 Straw distillate.....	3⅛- 3¼	3⅛- 3¼	3⅛- 3¼
32-36 Gas oil.....	3 - 3⅛	3⅛- 3¼	3⅛- 3¼
26-30 Fuel oil (Bbl.).....	.95 -1.00	.95 -1.00	1.00 -1.02½
24-26 Fuel oil (Bbl.).....	.90 - .95	.92½- .95	.95 -1.00
24-26 Fuel oil (Buyers' cars)	.90 - .95	.95 - .97½	.97½-1.00
20-22 Fuel oil (Bbl.).....	.90 - .92½	.90 - .92½	- .95
60-60 Asphaltic content road oil.....	1.10-1.15	1.10-1.15	1.10-1.15

NORTH TEXAS	Prices June 22	Prices June 15	Prices June 8
36-40 Straw Distillate.....	3¼- 3⅜	3¼- 3⅜	3¼- 3⅜
32-36 Gas Oil (Gal.).....	3 - 3⅛	3 - 3⅛	- 3¼
24-26 Fuel, per bbl.....	.92½- .95	92½- .97½	.97½-1.00
GULF COASTAL			
Fuel.....1.50 -1.60		1.50 -1.60	1.50 -1.60
Gas Oil.....	5½- 6	5½- 6	5½- 6
NORTH LOUISIANA			
32-36 Light Gas Oil (Gal.)	3½- 3⅝	3¼- 3¼	3¼- 3¼
18-22 Fuel Oil (Bbl.).....	1.00-1.05	1.00 -1.05	1.00 -1.05
ARKANSAS			
32-36 Gas Oil.....	3½- 3⅝	3¼- 3⅜	- 3½
Smackover fuel (processed)	90 - .92½	.90 - .92½	.95 -1.00
Road Oil.....	- 3	- 3	- 3
CALIFORNIA*			
14-18 Fuel Oil (Bbl.).....1.50		1.50	1.50
14-18 Bunker Oil (Bbl.)...1.50		1.50	1.50
24-30 Gas Oil (Bbl.).....1.75		1.75	1.75
27 + Diesel Oil (Bbl.)....1.75		1.75	1.75

*Prices at southern California points. Prices at San Francisco and other coast points 5c per bbl. higher. San Joaquin valley 10c per bbl. less.

NEW ENGLAND (F. O. B. Boston and Fall River)			
30-32 gas oil (gal.).....	- 5¾	- 5¾	- 5½
Fuel Oil (Bunker C) bbl...	-1.77	-1.77	-1.78

Above prices are f. o. b. refinery in tank car. They are the prices at which the bulk of the products on the open market move. Whoever has knowledge of any open market prices on any considerable quantity of goods differing from the foregoing, will favor us with this information.

(Continued from page 153)

that gasoline prices will fall much in the near future. Prices are not far enough above costs to keep refiners running at their present high rate if demand and prices decline.

One result of the narrow margins between tank car and tank wagon price undoubtedly will be a growth of efficiency in the operation of distributing companies. Those jobbers who have too high overhead will have to cut their expenses if they are to survive.

Because of their present situation also jobbers are more interested in 56-58, 450 end point and 58-60, 450 end point gasoline than has been usual during the past two summers. This attitude on the part of jobbers is meeting with no complaint from refiners. With natural gasolines selling at nearly 3 cents per gallon above the price of U. S. Motor refiners are glad to keep their purchases as low as possible and sell the higher end point and lower gravity motor fuels.

Natural Gasoline Scarce

Natural gasolines are still scarce. One sale of 50 cars for delivery over the remainder of the month was made today at 16 cents per gallon. Several rather large purchases have been made at 15¾ cents this week cleaning up most of the 15½ cent goods. All grades are selling at about the same price and buyers are in many cases telling the manufacturers to ship any grade rather than shop around enough to get the exact grade they wish.

Undoubtedly refiners are curtailing their consumption of natural gasolines because of present high prices but the curtailment does not appear to have had any weakening effect on the market thus far. One reason for this is that lessened consumption has been at least partly offset by reduced production due to the high temperatures which have prevailed in the Mid-Continent this month. In addition to that, export demand is still good and the total movement of refinery gasoline is greater than ever before in the history of the field so that if a less percentage of naturals is used the total volume has not been greatly affected.

Kerosene Weak

The kerosene market is weak. Shipments of kerosene are about normal or a little above but the heavy gasoline demand is resulting in such an increase in crude runs that production is unusually heavy. This is true even in spite of the fact that refiners are continually improving their fractionation so that they make fewer gallons of kerosene out of a barrel of crude. The 41-43 grade is selling at 4 to 4¼ cents a gallon and 42-44 is rather scarce, bringing 4⅝ to 4⅞ cents per gallon. Some refiners are demanding 5 cents per gallon for this product and making scattered sales at that figure.

Distillates are attracting little or no attention in the market. Prices stand about where they have for many weeks. Jobbers have not begun to campaign for summer fills of home burner tanks and they have not thought much about laying in a supply for their own later sales requirements. Some winter contracts are in process of negotiation but these are few.

There has been no new buying of gas oil of consequence and that market has been dull. Some gas oil is available at 3 cents per gallon which is ⅛ cent below the level earlier in the week after the Standard Oil Co. of Indiana had placed its order for cracking stock.

Considering the volume of fuel oil being produced the market for that product is remarkably good. Shipments to industrial consumers are being made in good volume and railroads are excellent customers. The large production is keeping stocks gradually accumulating and in some quarters are planning to put some fuel oil away in more or less permanent storage, at least until the winter season opens. One refiner said yesterday he had about decided to take two 55,000 barrel tanks out of crude service and fill them with fuel oil for winter sale.

Prices for fuel this week have been well maintained at 90 to 95 cents per barrel. There is little or no difference between the price of heavy and light fuels except that 26-30 is bringing 95 cents to $1. There has been some scarcity of dirty cars which has had a slight effect on the market.

Compounded motor oils have been moving briskly this week without change in price. Some of the uncompounded neutrals have been slower but for the most part refiners of lubricating oils have plenty of business on hand to keep them busy from a week to a month in advance.

Steam refined cylinder stocks are rather slow. Prices generally are unchanged but refiners probably would shade their prices to get any large orders which might be in prospect.

Wax is well sold up at most plants. The few orders placed have been at around 5¼ cents per pound.

Gulf Lubes Firmer

HOUSTON, June 20.—Gulf Coastal lubricants are firmer. Manufacturers are less willing to shade quotations for any oils. With the exception of 500 viscosity red oil which is ½ cent a gallon cheaper, lubricants prices are either stationary or slightly higher.

Firm Prices and Steady Demand Characterize Chicago Market

CHICAGO, June 20.—For the Group 3 gasoline price to stand firm at a respectable figure over a period of three weeks at the peak of the summer motoring season is something to marvel about. The like has not happened since 1922 when in June the price remained 18¾ cents for four weeks. Today the price is 13 cents for U. S. Motor gasoline, just as it has been for three weeks. Furthermore there is little indication of a change, and about as many signs of a fall as a rise.

The tank wagon price level in Standard Oil Co. of Indiana territory is as low today as the tank car price will permit. In the opinion of some, the tank car price would advance if the tank wagon price were "chalked up" a notch or two, but that is rather a refiner's attitude. The jobbers of this region are satisfied with their narrow margins this summer. In almost every community and in every state in the middle west, the gallonage of legitimate companies is menaced by cutprice stations—not able to make much of a cut on existing margins but just waiting for a chance.

Gasoline inferior to U. S. Motor is not to be had at a great reduction under Motor price. A few cars of Motor might be had this week for 12¾ cents a gallon for resale. And a certain amount of 56-58 might have been purchased at 12½ for resale, but such material was scarcer on Friday and Saturday than it had been early in the week. The bargains procured were not indicative of a generally weakening price, because 56-58 was firm to the trade at 12¾ cents on Friday and U. S. Motor steady at 13 cents.

For some reason, 41-43 kerosene is dull. It can be had by almost any comer as cheap as 4¼ cents, and for resale that price might be shaded. But 42-44 kerosene is ½ cent higher. It is firmer at 4¾ cents than the 41-43 grade is at 4¼ cents, but even the better grade might be had under 4¾ if it were not a special brand or sold with a guaranteed end point.

Intermediate grades of oil are dull. The best domestic distillate can be had at 3½ cents, and the demand is small. It is true that some jobbers are storing distillate, and it is interesting to know that a few of them are placing their summer purchases of distillate in tanks belonging to their customers; but compared with other seasons of the year and with other products now, distillate is a mere topic of conversation. A thoroughly satisfactory grade of stove distillate can be had now for 3¼ cents.

Gas oil is in some demand, and is worth more than its fuel value. It is almost as expensive as distillate which is lighter. Both on scarcity and on current demand, gas oil is selling as high as 3⅜ cents for the straw color and even the dark can not be had under 3 cents. That is around $1.35 a barrel, by way of contrasting it with fuel oil which is now quiet at 90 cents.

Some refiners claim to have sold 24-26 Mid-Continent fuel for 92½ cents this week, accepting no lower bids, but the trade is full of fuel oil bears. Several are betting on 85-cent fuel in July.

Pennsylvania Neutrals Stronger; Cylinder Stocks Steady

CLEVELAND, June 22.—Pennsylvania refinery markets this week may be well described as steady. It is true there are spots which are stronger than others and few refiners are wont to brag about kerosene demand, but the movement of most products is of such volume and at prices sufficient to enable them to keep out of the "red" even after taking all the depreciation and depletion the government allows.

Gasoline movement has been good, all refiners report although spot business has not been so heavy as in the latter part of May. Prices are steady, 58-60 of U. S. Motor specification selling to the trade at 16 to 16¼ cents which is the normal differential over Group 3 prices.

Naphthas are steady and not plentiful. Blended gasolines are easier and are more in line with refinery gasolines now that the excitement over natural gasoline has subsided somewhat. Refiners are using as little of natural gasoline as is possible and obtaining low initials by running in the light gasolines with the heavier cuts.

Kerosene is spotty. Two of the larger Independent refiners in Pennsylvania today said they were sold up on 45 water white. Each was asking 6½ cents a gallon but this grade was obtainable by those willing to shop for it at 6¼ cents and could be had freely at 6⅜ cents.

Demand for straw color fuel oil has held up but the price is a little easier, being about the same as 45 water white whereas a week ago several refiners were asking 6¾ cents a gallon or ¼ cent more than the water white.

Neutrals are slightly stronger. Demand has picked up in the last week and price concessions which were obtainable early in the month seem to have disappeared.

New cylinder stocks business is light but most refiners still have considerable business on their books and are not worried about the outlook. The price was firmer today than at the middle of last week when it was rumored that 600 steam refined of unspecified viscosity could be bought for 19 cents.

Waxes are steady. Most refiners have plenty of wax orders ahead and some are quoting 5½ cents for 122-124 A.m.p. white crude scale, New York basis. The spot market apparently is ⅛ to ¼ cent under that quotation.

Kentucky

The heavier gasolines are easier today in central Kentucky but the 64-66 grade is steady at 17½ cents a gallon. The price of U. S. Motor was 15 cents and 60-62 16 cents. The burning oils were unchanged, 42-44 water white kerosene being 7½ cents; 34-38 gas oil 5 cents, and 24-26 fuel oil 4 cents a gallon.

Tank Wagon Market Late Price Changes

Gasoline Changes

Standard of Kentucky—T.w. and s.s. increased 1 cent in Florida, June 9, covering additional 1 cent tax effective June 6, which brought total tax in Florida to 4 cents.

Standard of Louisiana—T.w. cut 1 cent, s.s. 2 cents at Alexandria, La., to 19.5 and 20.5 cents respectively, June 16. T. w. and s.s. cut 2 cents at New Orleans, Memphis and Nashville, June 17. T.w. at New Orleans is 18.5, Memphis, 19 and Nashville, 20.5 cents, including 2 cents tax in Louisiana, and 3 cents tax in Tennessee.

* * *

Kerosene Changes

Standard of Louisiana—Reduced 1 cent generally through territory, excepting Little Rock, Shreveport, Bristol and Nashville, June 16.

Benzol Scarce and Firm

NEW YORK, June 22.—All descriptions of benzol were firmer at the end of the week. On Monday, leading distributors advanced pure and 90 per cent 1 cent a gallon. The 90 per cent in tank cars is now quoted at 24 cents and in drums at 29 cents while pure is held at 25 and 30 cents respectively.

Spot motor benzol is still scarce and unchanged at 23 cents a gallon in tanks at the ovens. Production has not shown much change, and the bulk of the movement continued against old contracts based on the tank wagon prices of gasoline. Consumption of motor fuels continues to soar, and blenders are anxious to cover their summer requirements.

ABERDEEN, S. D.—The High Grade Oil Co. has erected a service station in front of its bulk station here. The station will be known as "Teapot Dome," according to A. McTiver, secretary and treasurer.

Tank Wagon, Service Station Markets for Gasoline and Kerosene In United States Territories and Canada

BELOW are given in cents a gallon, the tank wagon price of gasoline without the special taxes levied against motor fuels by many states, the amount of the state taxes, the total tank wagon price, with tax added in and the service station or retail price of gasoline as quoted by the Standard Oil Companies in their various marketing territories. The right hand column is the tank wagon price of kerosene. By tank wagon price is meant the price to resale agents or dealers.

These Prices in Effect June 22, 1925

S O. NEW JERSEY TERRITORY

	Gasoline T.W.	Tax	Total	S.S.	Oil T.W.
Atlantic City, N. J.	19	0	19	*	12.5
Newark, N. J.	19	0	19	21	12.5
Annapolis, Md.	20	2	22	*	12
Baltimore, Md.	19	2	21	23	11
Cumberland, Md.	20	2	22	24	12
Washington, D. C.	19	2	21	23	12
Danville, Va.	20	3	23	*	13
Norfolk, Va.	20	3	23	25	13
Richmond, Va.	20	3	23	25	13
Roanoke, Va.	20	3	23	25	13
Petersburg Va.	20	3	23	*	13
Charleston, W. Va.	19	2	21	23	13
Clarksburg, W. Va.	20	2	22	24	13
Keyser, W. Va.	20	2	22	*	13
Parkersburg, W. Va.	19	2	21	23	13
Wheeling, W. Va.	19	2	21	23	13
Williamsburg, W. Va.	20	2	22	*	13
Charlotte, N. C.	20	4	24	26	14
Hickory, N. C.	20	4	24	*	14
High Point, N. C.	20	4	24	*	14
Mt. Airy, N. C.	20	4	24	*	14
Salisbury, N. C.	20	4	24	*	14
Charleston, S. C.	20.5	5	25.5	27.5	14.5
Columbia, S. C.	20.5	5	25.5	27.5	14.5

*Dealers set own prices. S. O. New Jersey does not operate station.

S. O. NEW YORK

*New York City	22	0	22	24	13
Albany, N. Y.	†20	0	†20	†22	13
Buffalo, N. Y.	22	0	22	25	13
Rochester, N. Y.	†22	0	†22	†26	13
Syracuse, N. Y.	22	0	22	24	12
Boston, Mass.	22	0	22	26	11
Augusta, Me.	22	1	23	26	13
Manchester, N. H.	22	2	24	28	13
Burlington, Vt.	22	2	24	27.5	13

*In steel barrels.
†At Rochester and Albany, Standard sells two grades of gasoline, the above price applying to its Socony grade, and another grade being sold 2c below this price.

ATLANTIC REFINING

Pittsburgh, Pa.	21	0	21	*26	14
Philadelphia, Pa.	21	0	21	*26	14
Allentown, Pa.	21	0	21	*26	14
Erie, Pa.	21	0	21	*26	14
Scranton, Pa.	21	0	21	*26	14
Altoona, Pa.	21	0	21	*26	14
Dover, Del.	21	2	23	26	14
Wilmington, Del.	21	2	23	26	14
Providence, R. I.	22	1	23	27	13
Springfield, Mass.	21	0	21	24	13
Worcester, Mass.	22	0	22	26	13
Hartford, Conn.	21	1	22	26	12
New Haven, Conn.	22	1	23	27	13
Boston, Mass.	22	0	22	26	12

*Contains 2-cent tax collected by retail dealer and paid by him directly to state.

S. O. KENTUCKY

Lexington, Ky.	15	3	18	21	14
Louisville, Ky.	19	3	22	25	12
Covington, Ky.	18	3	21	24	14
Clarksdale, Miss.	19	3	22	25	12
Jackson, Miss.	19	3	22	25	10
Natchez, Miss.	18.5	3	21.5	24.5	11.5
Vicksburg, Miss.	18.5	3	21.5	24.5	11.5
Birmingham, Ala.	20	2	22	25	14.5
Mobile, Ala.	19	2	21	24	11
Montgomery, Ala*	21	2	23	26	15.5
Atlanta, Ga.	21	3	24	27	13
Augusta, Ga.	21	3	24	27	15
Macon, Ga.	21	3	24	27	14.5
Savannah, Ga.	19	3	22	25	13
Jacksonville, Fla.	19	4	23	26	13
Miami, Fla.	21	4	25	28	14.5
Tampa, Fla.	19	4	23	26	13
Pensacola, Fla.	19	4	23	26	13.5

*Local privilege tax of 1 cent on gasoline and ½ cent on kerosene at Montgomery included.

S. O. INDIANA

	Gasoline T.W.	Tax	Total	S.S.	Oil T.W.
Chicago, Ill.	†18	0	†18	20	12
Decatur, Ill.	18.2	0	18.2	20.2	12.5
E. St. Louis, Ill.	17.1	0	17.1	19.35	11.6
Joliet, Ill.	18.4	0	18.4	20.4	12.7
Peoria, Ill.	18.2	0	18.2	20.2	12.5
Quincy, Ill.	18.2	0	18.2	20.2	12.5
Indianapolis, Ind.	18.2	3	21.2	23.2	12.7
Evansville, Ind.	18	3	21	23	12.5
South Bend Ind.	18.4	3	21.4	23.4	12.9
Detroit, Mich.	18.8	2	20.8	22.8	13.2
Grand Rapids, Mich.	18.7	2	20.7	22.7	13.1
Saginaw, Mich.	18.9	2	20.9	22.9	13.3
Madison, Wis.	18.3	2	20.3	22.3	12.5
Milwaukee, Wis.	18.1	2	20.1	22.1	12.3
La Crosse, Wis.	19.2	2	21.2	23.2	13.4
Minneapolis, Minn.	19.2	2	21.2	23.2	13.6
Duluth, Minn.	19.5	2	21.5	23.5	13.6
Mankato, Minn.	19.1	2	21.1	23.1	13.4
Des Moines, Iowa.	18.5	2	20.5	22.5	12.9
Davenport, Iowa.	18.5	2	20.5	22.5	12.9
Sioux City, Iowa.	18	2	20	22	12.5
Mason City, Ia.	18.5	2	20.5	22.5	12.9
St. Louis, Mo.	**17.6	2	19.6	21.9	12
Kansas City, Mo.	††18.9	2	20.9	22.9	11.3
St. Joseph, Mo.	**18	2	20	22	11.9
Fargo, N. D.	19.9	1	20.9	22.9	15.6
Grand Forks, N. D.	20.1	1	21.1	23.1	15.9
Minot, N. D.	20.9	1	21.9	23.9	15.6
Pierre, S. D.	20	3	23	*	14.1
Huron, S. D.	18	3	21	23	14.1
Wichita, Kans.	17.8	2	19.8	21.8	11.8
Bartlesville, Okla.	16.9	3	19.9	21.9	10.9

†Dumps of 100 or more gallons at 17c per gallon.
*S. O. Indiana does not operate station.
**Includes city tax of ½c.
††Includes city tax of 1c.

S. O. NEBRASKA

Crawford, Neb.	19	2	21	*	13.25
Omaha, Neb.	18.25	2	20.25	20.5	12.5
McCook	19.75	2	21.75	23.75	14
Norfolk	18.75	2	20.75	22.75	13
North Platte	19.75	2	21.75	23.75	13.75
Scotts Bluff	19.25	2	21.25	23.25	13.25

*Standard has no service station here.

CONTINENTAL OIL

Denver, Colo.	19	2	21	23	14.5
Pueblo, Colo.	19	2	21	23	14.5
Casper, Wyo.	19	2½	21.5	23.5	13
Cheyenne, Wyo.	20.5	2½	23	25	14.5
Butte, Mont.	21	2	23	23	16
Helena, Mont.	23	2	25	27	17
Salt Lake City, Utah.	20.5	3½	24	26	18
Boise, Ida.	21.5	3	24.5	26.5	20
Albuquerque, N. M.	23.5	3	26.5	29.5	16.5

S. O. CALIFORNIA

Phoenix, Ariz.	20	3	23	26	21.5
Los Angeles, Cal.	13.5	2	15.5	18.5	15.5
Fresno, Cal.	15.5	2	17.5	20.5	17.5
San Francisco, Cal.	15	2	17	20	15.5
Reno, Nev.	18.5	4	22.5	25.5	19
Portland, Ore.	15	3	18	21	16.5
Seattle, Wash.	15	2	17	20	16.5
Spokane, Wash.	19	2	21	24	20.5
Tacoma, Wash.	15	2	17	20	16.5

S. O. LOUISIANA

Camden, Ark.	19	4	23	25	11
Little Rock, Ark.	19	4	23	25	10
West Helena, Ark.	19	4	23	25	11
Alexandria, La.	17.5	2	19.5	20.5	11
Baton Rouge, La.	17	2	19	21	9.5
Lake Charles, La.	18.5	2	20.5	22.5	11
New Orleans, La.	*16.5	2	18.5	20.5	10
Shreveport, La.	18.5	2	20.5	22.5	11
Lafayette, La.	18	2	20	22	10.5
Bristol, Tenn.	20	3	23	25	12.5
Chattanooga, Tenn.	19.5	3	22.5	24.5	12.5
Knoxville, Tenn.	20.5	3	23.5	25.5	13
Nashville, Tenn.	17.5	3	20.5	22.5	12.5
Memphis, Tenn.	16	3	19	21	12

*Includes 1c city tax on gasoline and kerosene.

S. O. OHIO

	Gasoline T.W.	Tax	Total	S.S.	Oil T.W.
All Ohio points	*18.5	2	20.5	22.5	13

*This price is on the assumption the Ohio distributor pays the 2c gasoline tax.

MAGNOLIA PETROLEUM

Muskogee, Okla.	18	3	21	24	11
Oklahoma City	18	3	21	24	12
Tulsa, Okla.	18	3	21	24	11
Fort Smith, Ark.	19	4	23	26	12
Little Rock, Ark.	19	4	23	25	10
Texarkana, Ark.	19	4	23	26	12
Dallas, Tex.	18	1	19	23	12
El Paso, Tex.	19	1	20	23	13
Fort Worth, Tex.	18	1	19	23	12
Houston, Tex.	18	1	19	23	12
San Antonio, Tex.	18	1	19	22	12

*Within city of Texarkana, Ark., the state tax on gasoline is 1c per gal. conforming with the Texas state tax. In Texarkana district outside of the city the 4c state tax applies.

V. M. & P. NAPHTHA

(Changes ordinarily occur coincident with gasoline)

	V.M.&P. Naphtha	Oleum Spirits
Chicago	21	19
Detroit	22.7	20.2
Kansas City	21.2	19.2
Milwaukee	21.7	19.2
Minneapolis	23	20.5
St. Louis	20.9	18.4
New York	21.5	---
Cleveland	19	....

CANADA

(Per Imperial Gallon, which is 1.2 American Gallons)

Prices in effect June 22, 1925

ONTARIO

	Gasoline T.W.	Tax	Total	S.S.	Oil T.W.
Toronto	24.5	3	27.5	31	20
Ottawa	25.5	3	28.5	32	21
Cochrane	29.5	3	32.5	40	24.5
Ft. William	27.5	3	30.5	34	22.5

MANITOBA

Winnipeg	27.5	3	30.5	34	22.5

SASKATCHEWAN

Regina	30.5	0	30.5	34	25.5

ALBERTA

Edmonton	32.5	2	34.5	38	27.5
Calgary	31.5	2	33.5	37	26.5

BRITISH COLUMBIA

Vancouver	21	3	24	28	23

QUEBEC

Montreal	24.5	3	27.5	31	20
Quebec City	25.5	3	28.5	32	22

NEW BRUNSWICK

St. John	27.5	0	27.5	31	23
Moncton	27.5	0	27.5	31	25

NOVA SCOTIA

Halifax	27.5	0	27.5	32	23
Sydney	29.5	0	29.5	38	25

PRINCE EDWARD ISLAND

Charlottetown	27.5	2	29.5	34	25

Note: In districts surrounding these points 1c additional is added to city price.

Complete Export Markets

New York Gulf Coast California

Export Buyers Observe New York Market but Orders are Few

By Special Correspondent

NEW YORK, June 22

EUROPEAN buyers are studying the oil situation here more closely but are still purchasing sparingly. Five inquiries for mixed cargoes of gasoline and kerosene, have been in the New York market but none of them developed. The fact that virtually all of the big refiners here are reluctant to quote beyond June-early July shipment, is held partly responsible for the slump in bulk business.

For spot delivery U. S. Motor gasoline can be had at 15½ cents a gallon, refinery, while over the remainder of June 16 cents is asked. No price is quoted beyond the end of June but early July can probably be had at 16 to 16½ cents on a firm bid. Bullish rumors have been circulating. Reports received from reliable Mid-Continent sources have been predicting an advance in price of Mid-Continent crude, and a subsequent rise in prices of all of the major petroleum products. A week or so ago the majority of refiners would have considered shading their prices a trifle to close business, but now figure the market is due for an advance.

A French buyer was inquiring for 42,000 barrels of U. S. Motor and 64-66 gasoline and prime and water white kerosene, and appeared anxious to close the deal, but this was still hanging fire Saturday. One of the leading Independents was working on it.

Afraid of Big Inquiry

There has been a persistent inquiry in the market for 120,000 tons of U. S. Motor and 64 gravity gasoline and prime and water white kerosene for delivery over the next 12 months, presumably to a British concern. Nobody seemed to know who the buyer was. An independent started working on this, but gave it up. Most refiners were skeptical, feeling that it probably emanated from some speculative source. Then again nobody would quote on such a large quantity at this time. However, the trade was curious about it.

There also was an inquiry from a regular British buyer for 50,000 barrels of gasoline and kerosene for July-August shipment but this failed to materialize. Three additional bulk inquiries for kerosene and gasoline were heard of but none materialized.

Kerosene Improves

Kerosene demand has improved a trifle but is mainly for domestic account. The asking price for water white at the refinery is 6¾ cents but 6½ cents could have been done in several directions. Prime was ½ cent cheaper. Stocks of kerosene are fairly large but the increased inquiry for late summer delivery, and the prospects of a heavy European demand during the fall have tended to improve sentiment considerably. There is less pressure to sell than a week ago. Cased kerosene is in slightly better demand. Demand from the Near East is better and three sales of 10,000 cases each were reported by a large Independent for July shipment. There is a steady consignment movement.

Grade C bunker oil remained steady at $1.75 a barrel at the refinery. Diesel oil was unchanged at $2.30, same basis. There was an inquiry for 15,000 barrels of bunker for nearby delivery but this was probably for domestic account. Reports of a price advance in the Gulf district have tended to improve the feeling up here.

Waxes were weak. Observers are following this market closely, and most prices were about ⅛ cent lower than a week ago. There appeared to be far more sellers than buyers as the week ended. Buyers were apathetic. Little or no export buying interest was shown. foreign buyers have been bidding at least ¼ cent a pound under the market here. Prices were quoted on a basis of 5¼ cents a pound for 122-124 A.m.p. white crude scale while fully refined was quoted at 5⅞ cents a pound. Semi-refined was more or less neglected at 5¾ cents for 122-124 A.m.p.

The petrolatums are dull. Lily white is offered freely at 9 cents a pound while snow white is held at 11¼ cents a pound. Dark green at 2½ cents a pound. British manufacturers of toilet preparations are buying steadily in small lots but no sizable sales have been disclosed. Medicinal oils were quiet and unchanged.

Lube Demand Lighter

Export movement of lubricating oils is lighter. Stocks are accumulating along the seaboard and exporters report difficulty in moving them. Pennsylvania 600 steam refined in barrels is easier, being available at 27 cents a gallon or 2 cents below the previous week's prices. Most cylinder oils were susceptible to shading although no general price reduction was noted. Paraffin oils have also eased off a little. Foreign buyers feel that current prices are higher than warranted and are holding off for a reduction in prices.

Gasoline Prices Soften at Gulf; Heavy Burning Oils Stiffen

By Special Correspondent

NEW ORLEANS, June 22.—At the beginning of the week U. S. Motor gasoline was held at 14½ to 14¾ cents while 64-66 gravity was quoted at 17½ to 17¾ cents a gallon, but as the week closed, the inside prices alone prevailed. One of the leading independents sold a mixed cargo of 42,000 barrels for July-August shipment, presumably to France. Prices were withheld but it was indicated that the U. S. Motor brought 14½ cents; 64-66 gravity 17½ cents; prime white kerosene 5½ cents, and water white 6½ cents a gallon.

An English buyer was in the market for two mixed cargoes of 45,000 barrels each for August, September shipment, and two of the leading Independents are working on these. A leading refiner is reported to have closed two mixed cargoes of 40,000 and 42,000 barrels for August shipment to the Continent, but details as well as confirmation are lacking.

Cased gasoline was quiet. A leading Independent closed a sale of 30,000 cases of U. S. Motor gasoline for August shipment to the Far East, but no sizeable sales were disclosed. A Japanese buyer was inquiring for 50,000 cases of U. S. Motor for August shipment, but this is still pending. U. S. Motor in cases, cargo lots, was held at $2.60 and 64-66 gravity gasoline was unchanged at $2.80 a case.

Kerosene prices have stiffened a little, and there is keener foreign buying in-

N. Y. Domestic Market

The following light oil, gas and fuel oil prices are F. O. B. New York refineries, being products made rom Domestic (including California) and Mexican Crudes.

	June 22	June 15
U. S. Motor Gasoline, Tank Cars Delivered	16¾-17	-16
U. S. Motor Gasoline, Tank Cars Bayonne	-15¼	-15
Kerosene, 45-150 W. W. Tank, Cars Del'd	-.07¼	-.07½
Grade C Bunker, f.o.b. N.Y.	1.75	1.75
Diesel Oil f.o.b. Refinery	2.30	2.30
Gas Oil, 36-40, Bulk, Refinery	-05½	-05½
Gas Oil, 28-34	-05¼	-05¼

terest manifested. Stocks on hand are fairly large, but owing to the steady inquiry for shipment to Europe late in the summer, more confidence is shown by the big holders. As the week ended water white was held at 6½ cents and prime white at 5½ cents.

Cased kerosene was rather flat. There were two inquiries each for 10,000 cases, one for July shipment to Brazil and the other for August shipment to a Near East destination, but neither materialized. Prime white was held at $1.60 a case while water white was dull but steady at $1.70 a case, cargo lots.

Grade C bunker oil was stronger. Mexican fuel is now held at $1.50 a barrel New Orleans, and it is doubtful if any domestic can now be had below this price. Demand has not shown any commentable improvement, being confined mainly to current bunkering, but the decline in production of Smackover crude along with the scarcity of offerings of heavy Panuco are held mainly responsible for the advance in price. At Tampico, grade C is also quoted at $1.50 a barrel.

Gas Oil Improves

The gas oil situation has improved. On Saturday there was virtually no 26-28 transparent available below 5½ cents while this price was also asked for 32 plus dark, but the latter could probably have been shaded ¼ cent a gallon on a firm bid.

Zero cold test lubricants were fairly steady although there was some talk of

Packing for Export

Oldest, Largest independent, export packing plant.

Port of New Orleans.

BARRELS
tight or slack

DRUMS
Storage

Canning and Casing.

Lubricating oil, Petrolatum, Wax, Kerosene, Gasoline.

P. W. Babcock

Office: 24 Stone Street, New York City
Plant: Westwego, New Orleans

New York Export Market

Prices below are averages of actual sales by local exporting agencies

	June 22	June 15
GASOLINE		
U. S. Motor, Bulk, Ref.	-15½	-15
KEROSENE		
45-150 W. W. Bulk Ref.	-06½	-06½
GAS OIL		
36-40, Bulk Ref.	-05½	-05½
28-34, Bulk Ref.	-05¼	-05¼
BUNKER OIL		
Grade C, Ref.	1.75	-1.75
Diesel Oil Ref.	2.30	-2.30
LUBRICATING OILS		
The following prices are cooperage basis f. o. b. New York, products being manufactured by inland refineries.		
CYLINDER OILS BBLS.		
Penna. Filtered D 600	-35	-36
Penna. Filtered E 600	-32	-34½
Unfiltered 600 s. r.	-27	-29
Unfiltered 650 s. r.	-34½	-36
600 flash s. r.	-36 38	-39
Western 600 s. r.	-16	-17
Bloomless 30-31 grav.	-24	-25
RED PARAFFIN (bbls.)		
300 vis. at 100°F.	-22	-23
250 vis. at 100°F.	-21	-22
175 vis. at 100°F.	-20	-21½
High Viscosity Paraffin	-27 28	-30
.885 s. g. pale 100 vis. at 100°F	-16	-16
SPINDLE (bbls.)		
200 vis. at 100°F. Pale	-30	-31
180 Pale	-28	-28
150 Pale	-26	-26
BLACK OIL (bbls.)		
25-30 cold test	14 -15 14	-15
15 cold test	15 -15½ 15	-15½

MEDICINAL OILS (Cooperage Basis) (Penna. Stocks)	June 22	June 15
Domestic.875-.885s.g.drums	1.00-1.08	1.00-1.08
Domestic.865-.870s.g.drums	75 -80	75- 80
Russian.885-.890s.g.325-330 vis. drums	1.20-1.25	1.20-1.25
WAXES (Penna. Stocks) (F. A. S. Carload Lots)		
WHITE CRUDE SCALE		
122-124 A. m. p.	-05¼	-05¼
124-126 A. m. p.	-05¼	-05¼
MATCH		
105-108 A. m. p.	-05⅞	-05⅞
111-115 A. m. p.	nominal	nominal
FULLY REFINED		
120-122 A. m. p.	-05⅞	-05⅞
123-125 A. m. p.	-06	-06¼
125-127 A. m. p.	-06⅛	-06¼
128-130 A. m. p.	-06¼	-06⅜
130-132 A. m. p.	-06½	-06½
133-135 A. m. p.	-07⅛	-07⅛
SEMI REFINED		
122-124 A. m. p.	-05⅜	-05⅜
YELLOW CRUDE SCALE		
124-126 A. m. p.	-05⅛	-05⅜
PETROLATUMS (Penna. Stocks)		
Dark Green	02½	02½
Veterinary	03½	03½
Light Amber	03½	03½
Dark Amber	03¾	03¾
Cream	06¾	06¾
Lily White	09	09
Snow White	11¼	11¼

N. Y. Export Quotations

Furnished by big exporting oil companies. No actual sales. Record for statistical purposes only.

Illuminating Oils
Standard Oil of New Jersey

	June 22	June 15
Bulk, gal., Bayonne	6.00	6.00
Barrels, gal., Bayonne, cargo	13.00	13.00
Cases, gal., Bayonne	16.50	16.50

Prices for water white oil (150 test) are 1 cent higher than those for standard white.

Gasoline-Naphtha
(Cents per Gallon)

U. S. Motor, dead bulk	16.50	16.50
U. S. Motor, cases	30.65	30.65
Export Naphtha bulk	19.25	19.25
*62-63 deg. bulk	20.50	20.50
66-68 deg. bulk	22.00	22.00

*Grade changed from 64-66 to 62-63 Jan. 9.

Tide Water Oil Company
(f. o. b. Bayonne)

58-59 deg. bulk	17.50	17.50
58-59 deg. cases	31.15	31.15
Export grade, U. S. Motor Specifications bulk	16.50	16.50
68-72 deg. bulk	23.00	23.00

	Bulk Barrels	Cases
Standard white 110	6.00 13.00	16.00
Water white 150	7.00 14.00	17.00

The Texas Company

Gasoline, cases	30.65	30.65

Kerosene	Bulk Barrels	Cases
Standard White	6.00 13.00	16.40
Prime White	6.50 13.50	16.90
Water White	7.00 14.00	17.40

Gulf Export Market

(Actual Sales Prices)
Gasoline

	June 22	June 15
U. S. Motor, Bulk	-.14½	-.14½
60-62 gr. 400 e. p.	-.16	-.16
64-66, Bulk	-.17½	-.17½
U. S. Motor, Cases (cargo lots)	2.60	2.60
64-66, Cases (cargo lots)	2.80	2.80
KEROSENE		
Water White, bulk 06½	-.06¼	-.06½
Prime White, bulk 05½	-.05¼	-.05¼
Water White, cases (cargo lots)	1.70	1.70
Prime White, cases (cargo lots)	1.60	1.60
GAS AND BUNKER OIL		
26-28, gravity, bulk 05½	-05	-05¼
32 plus, bulk Dark 05¼	-04⅞	-05
Grade C, Bunker oil 1.50	-1.45	-1.50
MEXICAN CRUDE AND BUNKER OILS		
Heavy, f.o.b. Tampico, Taxes to be added	nominal	nominal
Mexican Grade C, Bunker oil F. O. B. Tampico Taxes paid	1.50	1.45
Mexican C, Bunker oil New Orleans	1.50	1.45

Lubricating Oils

SOUTH TEXAS
(Viscosity at 100°F; cold test 0)
(Tanker, F. O. B. Houston)

	June 22	June 15
100 Vis. No. 2 Filtered Pale	08	08
150 Vis. No. 2½ Filtered Pale	10½	10½
200 Vis. No. 3 Filtered Pale	12	12
300 Vis. No. 3 Filtered Pale	14	14
500 Vis. No. 3½ Filtered Pale	17	17
200 Vis. No. 5½ Red Oil	11	11
300 Vis. No. 5½ Red Oil	13	13
500 Vis. No. 6 Red Oil	15	15
750 Vis. No. 6 Red Oil	20	20

shading prices a trifle on a firm bid. There was an inquiry from France for 21,000 barrels of assorted lubes for August shipment. One of the smaller Independents expects to close this early this week. Western 600 steam refined cylinder stock was in better demand at 14 cents a gallon.

The waxes are softer. Buyers are holding off and there was no bright spot to report. Stocks are fairly large and sellers appear more anxious to dispose of their holdings even at concessions. The majority of the big export buyers are holding off. White crude scale has been in small export demand. Match wax is dull and unchanged.

Medicinal oils and petrolatums showed no change. Export buying is less active and prices are about the same as at the beginning of the week.

California Market Firm

LOS ANGELES, June 19.—Large volumes of all oils continue to be moved in export shipments. Notable quantities of gasoline are leaving Los Angeles harbor daily for the east coast of the United States, England and the Orient. Price of export gasoline is the firmest it has been this year.

The domestic gasoline market is in good position, prices being firm and stocks continuing to be drawn upon.

The casinghead gasoline market is particularly strong. Spot contracts are being made at higher prices than have prevailed for some years. A few scattered spot sales have been made at as high as 14 cents this week.

Lubes are in a satisfactory position.

Cargoes Clearing From N. Y.

Date	Destination	Product	Quantity
June 3	Rio de Janiero	Ref. Pet.	10,000 cs.
June 3	Bahia (Brazil)	Ref. Pet.	10,000 cs.
June 3	Bahia	Gasoline	3,000 cs.
June 2	Beirut (Syria)	Ref. Pet.	30.000 cs.
June 2	Beirut	Gasoline	19,998 cs.
June 2	Mersina (Turkey)	Lubes	2,050 cs.

Pacific Export Market

(Cargo lots quotations at seaboard, Los Angeles.)

	June 22	June 15
Gasoline, U. S. Motor—54°—56°	10½-11½	10½-11½
Gasoline—U. S. Motor blends and special cuts.	11½-12½	11 -12½
Gas Oil, 24°—30°B per bbl.	$1.75	$1.75
Diesel Oil, 27°B-plus per bbl.	$1.75	$1.75
Bunker Oil, 14°—18°B per bbl.	$1.50	$1.50
Fuel Oil, 14°—18°B per bbl.	$1.50	$1.50
Kerosene, W.W.40°—42° B per gal., 125-150 flash test	05 -06½	05 -06½
Cased Goods		
Gasoline, U. S. Motor	$2.70	$2.70
Kerosene, W.W.40°—42° B per case, flash test 125-150	$1.55-1.65	$1.55-1.65

Crude Oil Prices All Fields

EASTERN FIELDS

	1925 June 15	1924 High	1924 Low	1923 High	1923 Low
Bradford-Allegany	$3.90	Jan.30..$4.50	Aug.21..$2.85	Feb.15..$4.25	Nov.13..$2.00
Gaines	3.45	Jan.30.. 4.00	Aug.5... 2.75	Feb.15.. 4.00	Nov.13.. 2.30
Other Penna	3.80				
West Virginia	3.75				
Penna. grade in Ohio	3.65				
Cabell	2.35	Mar.10.. 2.20	Jan.1and Aug.5. 1.45	Feb.15.. 2.76	Nov.13.. 1.20
Corning	2.05	Mar.10.. 2.15	Jan.1... 1.40	Feb.15.. 2.30	Nov.14.. 1.25
Somerset	2.45	Mar.10.. 2.30	Jan.1... 1.40	Feb.15.. 2.55	Nov.13.. 1.15
Somerset Light	2.60	Mar.10.. 2.50	Jan.1... 1.55	Feb.15.. 2.80	Nov.13.. 1.30
Ragland	1.30	Mar.10.. 1.10	Jan.1... .85	Feb.15.. 1.10	July 10.. .75

Somerset oil run prior to Oct. 1, 1923, takes price of 6 cents lower than above quotations.

CENTRAL STATES FIELDS

Wooster	$2.15	Mar.8...$2.15	Jan.1,and Sept.18 $1.40	Feb.19..$2.50	Nov.9...$1.80
Lima	2.23	Mar.8... 2.28	Jan.1... 1.53	Feb.19.. 2.58	Nov.9... 1.45
Indiana	2.03	Mar.8... 2.08	Jan.1... 1.33	Feb.19.. 2.38	Nov.9... 1.25
Princeton	2.02	Mar.8... 2.07	Jan.1... 1.32	Feb.19.. 2.37	Nov.8... 1.22
Illinois	2.02	Mar.8... 2.07	Jan.1... 1.32	Feb.19.. 2.37	Nov.8... 1.22
Plymouth	1.55	Mar.8... 1.45	Jan.1... .70	Feb.19.. 1.75	Nov.9... .60
Canadian Petrolia	2.63	Mar.8... 2.68	Jan.1... 1.93	Feb.19.. 2.98	Nov.9... 1.80

MID-CONTINENT AND NORTH TEXAS FIELDS

Below 30	$1.35	Currie	$2.00
30-32.9	1.55	Mexia	2.00
33-35.9	1.80	Powell	2.00
36-38.9	2.00		
39-41.9	2.25		
42 and above	2.35		

Humble's Prices

Moran Field Texas

Below 30	$1.35	Wortham	$2.00
30-32.9	1.55	Richland	2.00
33-35.9	1.80	Lytton Springs	2.00
36 and above	2.00		

Magnolia's Price Schedule
North and North-Central Texas, Okla., and Kan.

Below 28	$1.00	Corsicana, light, Powell, Mexia	$2.00
28-30.9	1.35	Corsicana, heavy	1.00
31-32.9	1.55	Thrall	1.00
33-35.9	1.80	*Magnolia pays $2 and $2.25 respectively for these two grades in Okla. and Kan.	
*36-38.9	1.95		
*39-41.9	2.10		
42 and above	2.35		

NORTH LOUISIANA—ARKANSAS FIELDS

Caddo, 38 degrees and above	$2.05	do 32 to 34.9	1.55
do 35 to 37.9	1.95	De Soto	1.90
do 32 to 34.9	1.85	Crichton	1.70
do below 32	1.70	Bellevue	1.75
Homer, 35 and above	1.80	Smackover 27 and above	1.30
do 33 to 34.9	1.70	do 26-26.9	1.25
do 31 to 32.9	1.60	do 25-25.9	1.20
do below 31	1.45	do 24-24.9	1.10
Haynesville, 33 and above	1.70	do below 24	.80
do below 33	1.60	Stephens 26 and above	1.45
El Dorado 33 and above	1.70	do below 26	1.25
do below 33	1.60	Cotton Valley	1.00
Bull Bayou, 38 and above	1.85		
do 35 to 37.9	1.70		

GULF COASTAL FIELDS

	1925 June 15	1924 High	1924 Low	1923 High	1923 Low
Spindletop	$1.75	Apr.1...$2.00	Jan.1 and Sept.17.....$1.25	Mar.15..$1.75	Aug.18..$1.00
Goose Creek "A"	1.75	Apr.1...$2.00	Jan.1 and Sept.17..... 1.25	Mar.15.. 1.75	Aug.18.. 1.00
Goose Creek "B"	1.50	Apr.1... 1.70	Sept.17..... 1.05	Mar.15.. 1.50	Aug.18.. 1.00
Sour Lake	1.75	Apr.1... 2.00	Jan.1 and Sept.17..... 1.25	Mar.15.. 1.75	Aug.18.. 1.00
Humble	1.75	Apr.1... 2.00	Jan.1 and Sept.17..... 1.25	Mar.15.. 1.75	Aug.18.. 1.00
Hull "A"	1.75	Apr.1... 2.00	Jan.1 and Sept.17..... 1.25	Mar.15.. 1.75	Aug.18.. 1.00
Hull "B"	1.50	Apr.1... 1.70	Jan.1 and Sept.17..... 1.00	Mar.15.. 1.30	Jan.1... .80
West Columbia	1.75	Apr.1... 2.00	Jan.1 and Sept.17..... 1.25	Mar.15.. 1.75	Aug.18.. 1.00
Edgerly	1.75	Apr.1... 2.00	Jan.1 and Sept.17..... 1.25	Mar.15.. 1.75	Aug.18.. 1.00
Vinton	1.75	Apr.1... 2.00	Jan.1 and Sept.17..... 1.25	Mar.15.. 1.75	Aug.18.. 1.00
Jennings	1.75	Apr.1... 2.00	Jan.1 and Sept.17..... 1.25	Mar.15.. 1.75	Aug.18.. 1.00
Saratoga	1.75	Apr.1... 2.00	Jan.1 and Sept.17..... 1.25	Mar.15.. 1.75	Aug.18.. 1.00
Orange "A"	1.75	Apr.1... 2.00	Jan.1 and Sept.17..... 1.25		
Orange "B"	1.50	Apr.1... 1.70	Jan.1 and Sept.17..... 1.00		
Pierce Junction "A"	1.75	Apr.1... 2.00	Jan.1 and Sept.17..... 1.25		
Pierce Junction "B"	1.50	Apr.1... 1.70	Jan.1 and Sept.17..... 1.00		

WYOMING FIELDS

Elk Basin	$2.15	Mar.10..$1.65	Jan.1...$ .95	Feb.17..$2.10	Nov.9...$ .95
Grass Creek	2.15	Mar.10.. 1.95	Jan.1... .95	Feb.17.. 2.10	Nov.9... .95
Big Muddy	2.00	Mar.10.. 1.50	Jan. 1... .45	Feb.17.. 1.65	Nov.9... .45
Salt Creek	1.60	Mar.10.. 1.60	Jan.1... .60	Feb.17.. 1.65	Nov.9... .60
Lance Creek	2.15	Mar.10.. 1.90	Jan.1... .90	Feb.17.. 2.10	Nov.9... .80
Rock Creek	2.00	Mar.10.. 1.70	Jan.1... .60	Feb.17.. 1.75	Nov.9... .60
Osage	2.15	Mar.10.. 1.90	Jan.1... .90	Feb.17.. 2.10	Nov.9... .80
Cat Creek, Mont	2.15	Mar.10.. 1.95	Jan.1... .95	Feb.17.. 2.10	Nov.9... .95
Sunburst, Mont	1.20	Mar.10.. 1.05	Jan.1.... 70	Feb.17.. 1.50	June 6.. .70

CALIFORNIA

14-19.9	$1.25	25-25.9	$1.44	30-30.9	$1.64
20-20.9	1.27	26-26.9	1.48	31-31.9	1.68
21-21.9	1.30	27-27.9	1.52	32-32.9	1.72
22-22.9	1.33	28-28.9	1.56	33-33.9	1.76
23-23.9	1.36	29-29.9	1.60	34-34.9	1.80
24-24.9	1.40			35 and above	1.80

ROSECRANS FIELD

36-36.9 ..... $1.80

and for each increase of one full degree above 36° gravity, up to and including 41.9° gravity, 8 cents per barrel additional

42 and above $2.60

North Texas Gasoline Market Is Brisk

Staff Special

WICHITA FALLS, June 20.—North Texas gasoline markets have been brisk during the third week of June. Although spot trading has been slow here as elsewhere in the Mid-Continent there has been a great deal of buying for future delivery which has kept the market from any tendency toward softness.

Pierce Petroleum Corp., has been a heavy buyer of 56-58, 450 end point gasoline for July delivery to its stations in Texas. The company has bought more than 200 cars this week for delivery next month. The best check available today places purchases at a total of around 225 cars.

Gulf Refining Co. has been another buyer. Gulf purchases have been partly for July and partly for delivery over the remainder of June. In the case of both buyers prices paid for July goods have been well in advance of current spot prices.

Exporters have been active in buying for July delivery also. It is estimated that purchases this week have been well over 2,000,000 gallons. Most of this was 64-66, 375 end point but some was 60-62 and 61-63, 390 end point goods. For this latter commodity the price reported paid was 14½ cents while the 64-66 brought 15½ cents.

At the end of the week Ohio jobbers began inquiring actively for 56 and 58 gravity, 450 end point gasoline for July. These buyers indicated that they would like to have their requirements for the month filled at around 12¾ cents per gallon. But refiners appear to be uniformly turning down such proposals. They are in a position now where they would rather not sell any more motor fuel in advance.

Production of U. S. Motor gasoline in north Texas is being limited to actual requirements at this time. With heavy export orders for high gravity gasolines refiners are making a high gravity cut and a low gravity cut and using as little high priced natural gasoline as they can get along with.

Kerosene, distillates and gas oil have been quiet during the week. Fuel oil has been steady, ranging from 92½ to 95 cents per barrel. In Wichita Falls the price is largely 95 cents while Burkburnett plants are willing to sell at a little less.

O'Brien Heads Shaffer Co.

CHICAGO, June 22.—J. J. O'Brien has been elected president of Shaffer Oil & Refining Co. Mr. O'Brien succeeds H. C. Cummins, who resigned. He is president of H. M. Byllesby & Co., Standard Gas & Electric Co., and an executive in several other Byllesby interests.

Refiners', Compounders' Supplies

Following are the average market prices for the week on materials used by refiners and compounders f. o. b. shipping point as effective this date.

Refiners' Supplies

		June 22	June 15
Soda Ash hght 58% bags	cwt.	-$1.38	-$1.38
Silicate of Soda 60 deg. drums	cwt.	- 1.70	- 1.70
Sal Soda wks	cwt.	1.10- 1.25	1.10- 1.25
Caustic Soda 76% solid.	cwt.	- 3.10	- 3.10
Chloride of Lime works	cwt.	1.80- 1.90	1.80- 1.90
Sulphuric Acid 60 deg. tank cars f. o. b. shipping point	per ton	9.50-11.00	9.50-11.00

Compounders' Supplies (Open Market)

Vegetable Oils—			
Linseed carloads spot	gal.	- 1.04	- 1.08
June-August		- 1.04	- 1.08
Tanks, spot		- .98	- 1.02
Less carload spot	gal.	- 1.07	- 1.11
Less than 5 bbls. spot		- 1.09	- 1.13
Boiled tank spot		- 1.01	- 1.05
Boiled, carloads spot	gal.	- 1.07	- 1.11
*Soya Bean spot, Bbls	lb.	- .13	- .13
Animal Oils—			
English Degras	lb.	.05 -.05¼	-.05
Domestic Degras, bbls., carloads	lb.	-.04¼	-.04¼
*Horse	lb.	-.09½	-.09½
Oleic Acid—			
Dist Bbls	lb.	-.11¾	-.11¾
Saponified. Bbls	lb.	-.11¼	-.11¼
Lard Oils—			
Prime Winter Strained.. 1 to 1½	ffa. 40‡45c.t.	lb. .19¼	.19¼
Extra Winter Strained.. 2 to 4½	ffa. 40/45c.t.	lb. .16¾	.14¾
Extra	4 to 5 ffa. 40/45c.t.	lb. .13¼	.13¼
Extra No. 1	7 to 10 ffa. 40/50c.t.	lb. .12¾	.12¾
No. 1	15 to 18 ffa. 40/45c.t.	lb. .12½	.12½
No. 2	22 to 25 ffa. 40/45c.t.	lb. .12¼	.12¼
Prime Edible Tallow under 1¾ ffa. 40/45c.t. N. Y		lb. -.10½	-.10½
Tallow acidless		lb. -.12½	-.12¾
Lard Stearine		lb. -.10½	-.10½
Oleo Stearine		lb. -.13¼	-.11½
Neatsfoot Oil—			
Pure	bbls.-lb.	.14½	.14½
Extra	do lb.	.12¾	.12¾
No. 1	do lb.	.12½	.12½
Cold pressed	lb.	.17½	.17½
Fish Oils—			
Menhaden Oil Light pressed	gal	-.78	-.78
White	gal.	-.83	-.83
Yellow bleached	gal.	-.81	-.81
*Herring tank cars coast	gal.	-.40	-.40
Whale, extra winter bleached	gal.	-.84	-.84
Seal	gal.		Nominal
Naval Stores—			
Turpentine, N. Y	gal.	.99	1.01
Turpentine†	gal.	.92	.91½
Rosin, B. N. Y	Bbl.	8.80	7.70
Rosin F. N. Y	Bbl.	9.55	9.20
Rosin B†	Bbl.	7.50	6.50
Rosin F†	Bbl.	8.25	7.90
Rosin Oil 1st run	gal.	.56	.58
Rosin Oil 2nd run	gal.	.59	.61
Pine Tar—			
Kiln Burnt	Bbl.	14.00	14.00
Retort	Bbl.	14.00	14.00

†Savannah, Ga. market.
*Nominal.

Caustic Soda Steady; Sulfuric Easier

NEW YORK, June 22.—Following is a review of the markets for oils and supplies used in compounding and refining:

Linseed Oil—Started off firmly, but declined 2 cents. Now $1.06, raw, carlots cooperage basis, spot—August delivery. Movement mainly against standing contracts.

Animal Oils—Lard oils slightly firmer. Extra winter strained higher. More export interest in neatsfoot oil. Prices steady. Oleo stearine firmer now 13¼ cents. Domestic degras flat 4½ cents. English degras quiet. Tallow oil buying slightly larger. Oleic acids, quiet and unchanged.

Fish Oils—Quiet. Little or no crude menhaden being offered. Light pressed in better demand, at unchanged prices. Bleached menhaden oils moving in slightly larger way, to leather manufacturers and paint trades.

Caustic Soda—Steady. Buying light and routine. No price changes. Stocks moderate. More interest in forward deliveries. Export buying spasmodic. No price changes.

Sulfuric Acid—Easier. Demand less active. Movement light and routine. Stocks moderate. Little interest in forward deliveries demand chiefly for prompt shipment.

Soda Ash—Demand better. Stocks moderate. Little interest in contracts. Buying along hand-to-mouth lines. Fair shipment against old contracts keeps stocks from accumulating.

Bleaching Powder—Easier as big buyers hold off. Approach of warm weather tends to discourage future buying. Prices unchanged.

Naval Stores—Demand lighter, and more spasmodic. Distributors report fair inquiry for turpentine. Rosins show easier tendency. Rosin oils in better demand. Tar and pitch inactive.

Another Fair Week Is Predicted

CHICAGO, June 22.—The early part of this week will be fair, according to the forecast issued from the Chicago weather office. The forecast applies to all of Standard Oil Co. of Indiana territory and states bordering it on the east. During the middle and latter part of the week, local showers may be expected. From the first to last, normal temperatures may be expected.

The weather map was a spotted chart last week. Rain fell in various parts of the United States, and in most of these places it was welcome. In some places it interfered with motoring temporarily but improved the roads and settled the dust to an extent that business was improved for the oil distributors.

Shell Union Maintains Increase In Profits During 1924

Staff Special

CLEVELAND, June 19

SHELL UNION OIL CORP. which is the holding company in the United States for all of the Royal Dutch properties except the New Orleans Refining Co. has increased is annual earnings steadily since its organization early in 1922.

Last year the Shell Union netted $1.74 on each no par common share after dividends on the preferred stock, depreciation and depletion, but before federal taxes. This rate compares with $1.56 in 1923 and $1.10 in 1922. The company paid $1 a share on the common last year. It is paying 35 cents a quarter or $1.40 a year March 31.

Earnings in the first quarter of 1925 were at a slightly lower rate, however, being 42 cents a share after all charges except federal taxes as compared with 50 cents a share in the first quarter of 1924. Because of the extension of the distribution of subsidiary companies' earnings for the remainder of the year are expected to be greatly increased.

Net production of the Shell Co. of California, Roxana Petroleum Corp. and Wolverine Petroleum Corp., subsidiaries, together with a half interest in the production of the Comar Oil Co., totaled, last year, 33,827,530 barrels net, a daily average of 92,425 barrels, as against net production of 33,699,576 barrels in 1923, a daily average of 92,327 barrels.

Wells Still Shut In

Concerning the operations of the company last year, President J. C. Van Eck said in a letter to stockholders:

"The Coalinga properties of the Shell Co. of California remained shut in during the greater part of the year, with the exception of wells from which it was necessary to produce to protect the properties from outside drainage. At the end of 1924, 235 wells capable of producing approximately 12,000 barrels per day, remained shut in and constitute a valuable reserve for the future.

"Drilling operations continue active in both California and Mid-Continent fields. Altogether your companies brought in 299 producing wells during the year and at the end of December were operating 144 drilling crews.

"During the year development of the Dominguez Hill field in southern California proved the great value of the holdings of the Shell Co. of California in this pool. Discovery of deeper sand in the Tonkawa field in the Mid-Continent added greatly to the already well-established value of this field. The Comar Oil Co. was successful in proving up another territory at Braman where large acreage, held by it permits a more reasonable and sound development. Successful wildcat properties were developed by the Roxana Petroleum Corp. at Southwest Winfield, Kan., and Buchner, Okla. Other discoveries, such as the Keywest, Cromwell and Torrance field, yielded their share in the production of your companies.

"The actual production of all properties of the combined companies on Dec. 31, 1924, was 91,630 barrels net, as against net production of Dec. 31 1923, of about 106,656 barrels.

Income accounts for the first quarters of 1924 and 1923 compare:

	1925	1924
Gross income	$10,146,650	$11,059,938
Depreciation, depl. etc	5,641,445	5,697,842
Net profit*	$ 4,505,205	$ 5,362,096
Preferred dividends	263,481	300,000
Common dividends	3,500,000	2,500,000
Surplus	$ 741,724	$ 2,562,096
Profit and loss surplus	20,162,080	14,567,603

*Before federal taxes.

"The new refinery at Arkansas City was completed early last year. As a result of the research constantly carried on by the technical advisers of your companies various improvements and additions were made and new facilities were added at the refineries of both the Shell Co. of California and the Roxana Petroleum Corp. The most important new construction by the Roxana is a lubricating oil plant at Wood River, Ill. This plant is expected to be completed before the end of June this year.

"The refineries of your companies have a total daily intake capacity of slightly over 95,000 barrels of crude. Last year's intake of the refineries amounted to 32,864,382 barrels as compared with 25,823,569 in 1923. The refineries were operated at practically capacity throughout the year.

"New casinghead gasoline plants were constructed in both California and the Mid-Continent. The plant of the Shell Co. of California at Long Beach was considerably enlarged. By the end of the year the combined daily production of casinghead gasoline by your companies was approximately 183,000 gallons. The production during 1924 amounted to 62,827,958 gallons as compared with 40,414,406 gallons in 1923."

There were no extensions of trunk pipe line during 1924, Mr. Van Eck reports, the system remaining at 968 miles in length but 119 miles of gathering lines were strung.

Add to Market Facilities

Both the Roxana and Shell Co. added to their marketing facilities. Sales during the year totaled $93,244,775 as compared with $74,274,425 in 1925. Markets were stable over most of the year in California but fluctuated badly east of the Rockies.

Since its organization early in 1922 the Shell Union spent $90,070,866 on

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Consolidated income accounts of Shell Union Oil Corp. and subsidiaries, including half interest in income of Comar Oil Co., follow:

	1924	1923	1922
Gross income	*$ 50,984,588	$ 38,909,833	$ 21,737,583
Deprec., depletion, etc	26,060,516	20,626,750	12,141,232
Special reserve	6,000,000	1,200,000	.....
Balance	$ 18,924,072	$ 17,083,083	$ 9,596,351
Minority interest	361,334	223,927	.....
Net income	$ 18,562,738	$ 16,859,156	$ 9,596,351
Preferred dividends	1,147,890	1,200,000	750,000
Common dividends	10,000,000	8,500,000	4,000,000
Surplus	$ 7,414,848	$ 7,159,156	$ 4,846,351

*Includes profit from sale of Union Oil Co. of California stock.

Consoldated balance sheets as of Dec. 31 follow:

ASSETS	1924	1923	1922
Property	$243,190,665	†$193,794,812	†$158,359,667
Investments	3,126,370	24,193,632	34,548,456
Advances to assoc. cos	2,819,192	2,922,645	1,311,912
Oil inventories	14,455,736	11,131,116	4,760,966
Materials and supplies	4,751,283	4,850,536	4,200,255
Accounts, notes receivable	6,023,344	4,907,920	3,826,625
Demand loans	28,500,000	.....	4,750,000
Cash	2,153,993	1,834,652	3,603,636
Deferred charges	988,352	718,202	371,000
Total	$306,008,936	$224,353,521	$215,732,516

†After depreciation and depletion.

LIABILITIES			
Preferred stock	$ 17,880,400	$ 20,000,000	$ 20,000,000
Common stock	*201,412,821	†201,412,821	†181,912,821
Minority interest in subsidiaries	1,433,909	1,092,975	.....
Purchase obligations	1,981,805	2,809,692	3,370,924
Accounts payable, includes Federal taxes	7,528,958	5,336,955	4,902,903
Notes payable	.....	345,571	551,517
Accrued dividend on pfd	143,628	150,000	150,000
Depletion, deprec. res	49,007,058	.....	.....
Special reserve	7,200,000	1,200,000	.....
Surplus	19,420,355	12,005,507	4,846,351
Total	$306,008,936	$224,353,521	$215,732,516

*Represented by 10,000,000 shares.
†Represented by 8,000,000 shares.

Transactions In Oil Shares on New York Stock Exchange

1924 High	1924 Low	1925 High	1925 Low		Listed Capital	Par Value	Stocks	Div. Rate	Last Paid	Transactions week ended June 20 Sales	First	High	Low	Last	Ch'ge
48	25	76	48	(sh)	200,000	N.P.	American Republics	.....	.....	1,200	74⅜	75	65½	70	+ ¾
34⅝	27⅜	41½	32	$	50,000,000	$25	Associated Oil	37½cQ	Apr. 25, 25	14,200	40⅜	*41½	39⅜	39½	— ¾
140⅜	78½	117½	95½		50,000,000	100	Atlantic Refining	.....	June 16, 24	6,300	116	116½	112	114⅝	—1⅜
118	108	117¾	113½		20,000,000	100	do pfd	$1¾Q	May 1, 25	100	117½	117½	117½	117½	— ¼
23½	14	30	21		14,000,000	25	Barnsdall Corp. A	.....	Apr. 30, 21	42,800	25	26⅞	24½	25⅜	+ ½
17½	10	23	16¼		3,713,275	25	do B	.....	Apr. 30, 21	1,600	20	20¾	19⅝	20	0
4¼	1	2¾	½	(sh)	150,000	N.P.	Caddo Central O. & R	.....	.....	4,400	⅞	⅞	¾	¾	— ⅛
29¾	19½	32⅞	23⅞	$	17,377,000	$25	California Petroleum	43¾cQ	June 1, 25	67,300	30¾	30¾	28⅞	29⅝	— ¾
107	92½	123	100		11,955,100	100	do pfd	$1¾Q	Apr. 1, 25	1,900	121¾	121½	119¾	119¾	+ ¾
63⅛	51⅜	62¾	42½		19,832,100	100	General Asphalt Co	.....	.....	8,100	54	55¾	52⅝	53½	— ½
100	71½	100	86½		7,416,000	100	do pfd	$1¾Q	June 1, 25	100	94¼	96	94¾	96	0
45	38⅜	59	42		28,909,550	25	General Petroleum	50cQ	June 15, 25	74,000	57	57½	54¾	56	—1¾
82½	61	85	59		25,000,000	100	Houston Oil Co	.....	.....	13,900	78½	79	75¾	76½	—2
16¼	5¾	39⅞	13½	(sh)	450,000	N.P.	Independent Oil & Gas	25cQ	Mar. 31, 25	174,800	*38	*41¾	*36⅝	*38⅝	+ ⅝
7⅛	3¾	10⅜	5½	$	7,830,450	10	Indian Refining Co	.....	Dec. 15, 20	14,600	⅞	10¼	8⅜	9¼	— ⅝
75	60	95	77		2,296,400	100	do pfd	.....	Dec. 15, 21	200	92	92	92	92	+2
1	¼	1⅜	¼		1,676,910	$10	Kansas & Gulf Corp	.....	.....	2,800	⅝	⅝	⅝	⅝	0
.....	.....	23¾	14⅝	(sh)	1,070,081	N.P.	Louisiana Oil Refining	.....	.....	29,000	20⅛	20⅛	18¾	18⅞	—1⅝
37½	24⅝	35½	25¼	(sh)	330,000	N.P.	Maracaibo Oil	.....	.....	17,200	28⅜	29⅞	27½	28⅜	— ⅝
42	29	46¼	32⅝	(sh)	1,649,689	N.P.	Marland Oil Co	.....	July 1, 28	89,800	45	45⅜	43⅞	44¾	— ⅛
190	190	250	225	$	45,942,800	$100	Mexican Petroleum Co	$3Q	Apr. 20, 25	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....		12,000,000	$100	do pfd	$2Q	Apr. 20, 25	.....	.....	.....	.....	.....	.....
23¾	14⅛	22¾	11¾	(sh)	945,989	N.P.	Mexican Seaboard Oil	.....	Nov. 15, 24	4,500	15¾	16	15	16	— ¼
40¼	22⅝	36	26	(sh)	1,357,800	N.P.	Mid-Continent Petroleum (Cosden)	.....	Aug. 1, 23	33,200	34¾	34⅞	33½	34¼	— ½
95	80	94	83	$	6,718,000	$100	do pfd	$1¾Q	June 1, 25	500	92	*94	92	94	+2¼
6⅞	1	3¼	⅝	$	29,800,220	$10	Middle States Oil Corp	.....	July 1, 23	53,200	2⅝	2⅝	2⅛	2⅛	— ⅛
58¾	45	65¼	52¼	(sh)	3,500,000	N.P.	Pacific Oil Co	$1S.A.	Jan. 20, 25	38,400	*59¾	59¾	57⅝	58¼	—1½
65	44⅛	83⅞	64	$	48,307,400	$50	Pan American P. & T	$1.50Q	Apr. 20, 25	16,600	77½	78¼	76	77⅝	—1⅜
64⅝	41¼	84½	63¾		90,425,100	50	do Class B	$1.50Q	Apr. 20, 25	89,500	78	79⅜	77	78½	—1¾
4⅜	1⅜	5⅜	3	(sh)	198,770	N.P.	Panhandle P. & R	.....	.....	500	4¼	4¼	3¾	3¾	— ¼
42¼	29	60½	43	$	2,935,200	$100	do pfd	.....	July 2, 23	100	56	56	56	56	+1
42½	28½	47⅜	36¼	(sh)	1,849,994	N.P.	Phillips Petroleum	50cQ	Apr. 1, 25	73,700	*46⅜	46½	44⅞	45¾	— ⅞
4½	1½	3⅝	1¾	$	29,622,925	$25	Pierce Oil Corp	.....	.....	8,300	2½	2½	2⅜	2⅜	— ⅛
36	20	40	25½		15,000,000	100	do pfd	.....	Feb. 1, 22	1,200	38	38¼	35½	35⅜	—2⅝
5¼	4⅜	8¼	5¾	(sh)	2,500,000	N.P.	Pierce Petroleum	.....	.....	15,300	7¾	7¾	7¼	7⅜	— ⅜
43½	22¾	32⅝	22	$	11,467,850	50	Producers & Refiners	.....	Sept. 15, 23	2,700	28⅛	28½	26	26½	—1¾
47½	42	47⅝	43⅛		2,845,350	50	do pfd	87½cQ	May 1, 25	300	44⅜	44½	44⅜	44½	+ ½
30¼	20	33¾	25⅜		75,959,250	25	Pure Oil Co	37½cQ	June 1, 25	36,800	31⅜	31⅜	29¾	30⅛	—1
105¼	92	107	103		13,000,000	100	do 8% pfd	$2Q	Apr. 1, 25	100	106	106	106	106	+1
59½	40⅜	57⅜	48¼	(sh)	823,298	13.40	Royal Dutch, N. Y. shares	$3.18½	Aug. 12, 24	12,300	53⅝	53¾	52⅜	52½	—1¼
42	33	45¾	39¾	(sh)	112,287	£2	Shell Transport & T	95c	Jan. 24, 25	600	42¼	42½	42	42¼	+ ¼
22½	15¾	28¾	22½	(sh)	10,000,000	N.P.	Shell Union Oil Corp	25cQ	Mar. 31, 25	37,700	25¾	25¾	24⅜	25	— ¾
99¼	91½	102⅜	99½	$	20,000,000	$100	do pfd	$1½Q	May 15, 25	400	101¾	101⅞	101⅜	101⅞	+ ⅜
24	10⅜	26¾	19½		7,206,830	10	Simms Petroleum Co	50Q	Jan. 2, 25	20,500	*26⅛	*26⅛	*24⅜	*24½	—1½
27⅛	15	24⅞	17	(sh)	4,482,225	N.P.	Sinclair Consolidated	.....	May 31, 24	150,400	23¼	24⅜	21⅞	23½	+ ¾
90	75	94⅛	78¾	$	18,190,200	$100	do pfd	$2Q	May 15, 25	1,500	92½	94	92½	94	+1¾
29	17⅜	30½	21¾		20,856,590	25	Skelly Oil Co	.....	.....	81,600	29½	29¾	28¾	29¾	— ⅜
68½	55½	67¼	56⅜		235,888,425	25	S. O. California	50cQ	June 15, 25	21,700	61⅞	61¾	59⅜	60	—1½
42¼	33	47½	38⅜		507,856,025	25	S. O. New Jersey	25cQ	June 15, 25	69,500	46	46⅛	44⅝	44⅝	—1⅜
119⅛	115¾	119	116½		199,972,900	100	do pfd	$1¾Q	June 15, 25	1,900	118¼	118⅜	117⅞	117⅞	— ⅛
8⅛	2⅜	6⅛	3¼	(sh)	1,121,268	N.P.	Superior Oil Corp	.....	Dec. 20, 20	5,800	4¾	5	4⅜	4½	— ¼
45⅜	37¾	49¼	42¾	$	164,450,000	$25	The Texas Co	75cQ	Mar. 31, 25	150,300	54	54⅝	51¼	52¼	—1⅝
15¼	8	23⅜	11⅞		8,380,340	10	Texas Pacific Coal & Oil	.....	June 30, 23	20,900	17⅜	17⅜	15⅞	16⅛	— ¾
151	116½	152	122		50,442,900	100	Tide Water Oil Co	$1Q	Mar. 31, 25	1,800	148	148	144	144	—3½
6¼	3¼	5⅞	3⅞	(sh)	3,682,529	N.P.	Transcontinental Oil Co	.....	.....	18,900	5⅛	5⅛	4⅞	5	— ⅛
59	35	43⅜	36⅛	$	40,480,800	$25	Union Oil of California	45cQ	May 10, 25	16,000	40¼	40¼	38⅝	39	—1⅛
132⅞	94	134	118½		18,115,000	$100	Union Tank Car Co	$1¾Q	June 1, 25	4,000	125¾	*134	125¾	131½	+7½
116¼	106¼	117⅜	113¼		12,000,000	100	do pfd	$1¾Q	June 1, 25	300	115⅛	115⅛	†113¾	113¾	—1¾
29⅛	23⅛	31¾	25⅝	(sh)	490,000	N.P.	White Eagle Oil & Ref	50cQ	Apr. 20, 25	2,500	29	29	28	28	—1

*New High †New Low xEx-Dividend Total Sales 1,566,800

Standard Oil Stock Traded In New York Curb Market

1924 High	1924 Low	1925 High	1925 Low		Outstanding Capital	Par Value	Stocks	Div. Rate	Last Paid	Transactions week ended June 19 Sales	First	High	Low	Last	Ch'ge
19¾	14⅜	26⅜	18	£	3,000,000	£1	Anglo American	45cS.A.	Nov. 15, 24	6,100	23	23	22⅛	22⅜	— ⅛
4⅞	2	4	2½	(sh)	500,000	N.P.	Atlantic Lobos	.....	.....	600	3¼	3¼	3	3	— ¼
16	5	12⅜	6⅞	$	10,000,000	$10	do pfd	.....	.....	.....	.....	.....	.....	.....	.....
265	155	239	205		1,000,000	$100	Borne-Scrymser	‡34S.A.	Apr. 15, 25	10	205	205	205	205	0
85½	51	72	59½		10,000,000	50	Buckeye Pipe Line	$1Q	June 15, 25	400	61	62	60½	61½	+1
52½	47⅜	70	48½		3,000,000	25	Chesebrough Mfg. Co	62½cQ	Mar. 31, 25	100	61	61	61	61	+1½
115	112	115	110		1,000,000	100	do pfd	$1¾Q	Mar. 31, 25	.....	.....	.....	.....	.....	.....
.....	.....	31¼	21⅞		30,208,590	$10	Continental Oil (Maine)	25cQ	June 15, 25	84,600	27⅝	27⅝	26¼	26⅝	—1
20	11¼	15⅜	10⅛		1,500,000	25	Crescent Pipe Line	.....	Sept. 15, 23	.....	.....	.....	.....	.....	.....
140	110¾	150	132		3,000,000	100	Cumberland Pipe Line	$3Q	June 15, 25	60	145	145	145	145	0
105	74	96	75½		5,000,000	100	Eureka Pipe Line	$1Q	May 1, 25	10	75½	75½	†75½	75½	—2½
69¾	52	65	54		16,000,000	100	Galena Signal Oil	$1Q	Mar. 31, 25	525	55¾	56	54½	55	— ½
113	100½	105	100		4,000,000	100	do new pfd	$2Q	Mar. 31, 25	30	101	102	101	102	+1
116	110	114	105		2,000,000	100	do old pfd	$2Q	Mar. 31, 25	10	105½	105½	105½	105½	+ ½
43¾	34½	72½	42½		43,750,000	25	Humble Oil & Ref	30cQ	Apr. 1, 25	40,900	72	*72½	68⅝	70¾	— ¼
161	120	154½	127		20,000,000	100	Illinois Pipe Line	$6S.A.	Dec. 30, 24	110	139	139	138	138	+2
.....	.....	34¾	27¾	(sh)	6,275,640	N.P.	Imperial New w.i	25cQ	June 1, 25	16,400	34¾	34¾	33	34⅛	0
100	66	84	70	$	5,000,000	50	Indiana Pipe Line	$1Q	May 15, 25	60	72¾	73	72½	73	0
24¾	16¾	28¾	22¼	(sh)	7,118,138	N.P.	International Petroleum	25c	Apr. 30, 25	30,300	27⅝	27⅞	26⅝	26¾	— ⅛
162	122	159	130½	$	180,247,100	100	Magnolia Petroleum	1%stk.	Apr. 5, 25	740	149	149	147	149	0
25⅞	20⅝	25⅞	21¾		6,362,500	12½	National Transit	50cQ	June 15, 25	200	22	22¼	22	22¼	+ ¼
97	54½	79	59		5,000,000	100	New York Transit	75cQ	Apr. 15, 25	.....	.....	.....	.....	.....	.....
107½	72	88	70		4,000,000	100	Northern Pipe Line	$3S.A.	Jan. 1, 25	60	80	80	80	80	+1
79½	55	75	62¼		60,000,000	25	Ohio Oil Co	50cQ	Mar. 31, 25	14,300	71⅞	74⅜	70	72	+ ¾
43	27	44½	25		10,000,000	25	Penn.-Mex. Fuel	50c	May 21, 25	900	28¼	28¼	25⅝	26½	—1
54¾	49½	65½	50¼		60,000,000	25	Prairie O. & G	50cQ	Apr. 20, 25	43,500	63¼	64	61	62½	— ⅞
111	100	127½	106		81,000,000	100	Prairie Pipe Line	$2Q	Apr. 30, 25	4,870	126	127	124½	125¼	— ½
230	175	259	200		4,000,000	100	Solar Refining Co	$5S.A.	June 20, 24	180	232	233	227	230	0
100	80½	103	80		10,000,000	100	Southern Pipe Line Co	$1Q	June 1, 25	170	81	81	†80	80	— ½
171	117	197	139		20,000,000	100	South Penn Oil Co	.....	Sept. 30, 22	840	172½	173	169	173	+1
89	68	84	65		3,500,000	100	Southwest Pa. Pipe Lines	$1Q	Apr. 1, 25	20	66	66	66	66	—1¾
68⅛	54¼	70	59½		223,756,258	25	S. O. Indiana	62½cQ	June 15, 25	53,100	69	69	66⅞	68	— ⅞
50¼	32½	46	30½		8,000,000	25	S. O. Kansas	.....	June 16, 24	2,000	37⅜	37⅜	36	36	—1½
121¼	101	126	114¾		16,864,434	25	S. O. Kentucky	$1Q	Mar. 31, 25	4,600	123½	*126	123	124	0
202	198	270	240		3,000,000	100	S. O. Nebraska	$5S.A.	June 20, 24	100	254	254	252	254	—1
48	37¾	48⅝	41		225,324,650	25	S. O. New York	35cQ	June 15, 25	26,300	46⅜	46¾	45½	46⅝	+ ⅜
377½	275	369	338		14,000,000	100	S. O. Ohio	$2½Q	Apr. 1, 25	210	361	361	355	353	—7
136	115	123	117½		7,000,000	100	do pfd	$1¾Q	June 1, 25	.....	.....	.....	.....	.....	.....
81	20	27	15		1,722,931	25	Swan & Finch	.....	Nov. 1, 19	160	16½	16½	†15	15	.....
83½	56¼	96¼	80⅛		61,523,075	25	Vacuum Oil Co	‡50cQ	June 20, 25	6,900	91¾	91¾	89¾	91	— ¾
30	25	30½	30		100,000	10	Washington Oil Co	.....	Jan. 31, 22	.....	.....	.....	.....	.....	.....

†Borne Scrymser $2 extra April 15 ‡Vacuum 50c extra Mar. 20 and June 20

additions to property and equipment and acquisitions.

It sold its interest in the Union Oil Co. of California as was reported at the time and put its profit from that sale into a special reserve fund. It also sold to the Wolverine Petroleum Corp. $3,000,000 of the preferred stock of that corporation.

$48,000,000 Working Capital

The balance sheet as of Dec. 31, 1924, shows current assets of $55,884,356 of which $2,153,994 was cash and $28,500,000 short term and demand loans. Current liabilities were $7,672,586, leaving net working capital of $48,211,770, as compared with $16,891,692 at the end of 1923. The growth in working capital is accounted for mostly by proceeds from the sale of the Union of California stock, which were invested in the short term loans.

The investment amounts shows contraction that balances a large part of the growth in the current assets. Oil inventories increased more than $3,000,000 to $14,455,736. The corporation charged off to depreciation and drilling expense more than $22,000,000, bringing the total reserve for these items up to $49,007,058. In addition the company's 50 per cent share in the reserves provided from earnings of the Comar Oil Co. amounted to $7,853,123.

Louisiana Oil Refining Triples Sales

CLEVELAND, June 20.—Report of the Louisiana Oil Refining Corp. for all of 1924 shows income of $660,704 after interest, depreciation and depletion but before federal taxes. In the first eight months before the consolidation of the Louisiana and the holding company, the Invincible Oil Corp., the company netted $853,877 but in the four months after the consolidation there was a net loss of $193,173 as published in the April 8 National Petroleum News. Net income was 15 per cent on the value at which the capital stock was carried Dec. 31.

Confidence in the future of the company is expressed by Richard B. Kahle, president, in his pamphlet report in which he says sales last December by the marketing department were three times as great as in December, 1923. The company has studied retail marketing conditions in Louisiana, Arkansas and Mississippi with a view to expand in that territory.

Concerning producing and refining operations last year, Mr. Kahle said:

"We have maintained our position in the fields where our several properties are located. Thirty-two new wells have been drilled during the year, of which 28 have been producers. Additional acreage has been acquired on favorable terms in the Cotton Valley and Smackover fields. Our total production at

(Continued on next page)

New York Curb Bonds

Week Ended June 20

	High	Low	Last	Ch'ge
Cities Serv. 7s B	178	173	178	—1
do 7s C	122½	121½	122½	+1½
do 7s D	101¾	101⅜	101½	0
do 6s	91	90½	90½	— ⅜
Galena S. O. 7s	104¾	104⅜	104¾	+ ¼
Galena S. O. 6s	101	101	101	0
Gen. Petr. 6s	102	101½	102	+ ¼
Gulf Oil 5s	100¼	100	100¼	+ ¼
do 5½s '28	100⅞	100⅞	100⅞	+ ¼
Pennok Oil 6s	100½	100½	100½	+ ¼
Pure Oil 6½s	102½	101¾	102⅝	+ ½
S. O. N. Y. 6½s	108	107¼	107½	+ ⅜
Sun Oil 5½s	98½	98¼	98½	+ ⅛
Tidal Osage 7s	104¾	103¾	103¾	— ½
Transcon. Oil 7s	101½	101¼	101½	+ ⅜
Union Oil Calif. 5s	96⅛	95⅞	96	+ ¾
Vacuum Oil 7s	105⅞	105¾	105¾	0
Valvoline 7s	104½	104⅜	104⅜	+ ¼

New York Bonds

Week Ended June 20

	High	Low	Last	Ch'ge
Associated Oil Co. 6s	103	102¾	102⅝	— ⅛
Atlantic Refg. debs 5s	100	99¾	99¾	— ¼
Barnsdall Corp. 8s	105¾	105⅛	105⅛	0
Calif. Petr. s. f. 6½s	103¾	103	103⅛	0
Empire Gas & Fuel 7½s	104½	104½	104½	0
Gen. Asphalt 6s	102½	102½	102½	0
Humble O. & R. 5½s	102¼	101¼	102¼	+ ⅜
Mid. Con. Petr. 6½s	98¾	97⅜	98¾	+1¼
Pan Amer. Petr. & Trans. 6s	114¼	110¾	111⅝	—2½
do 7s	106½	106	106	0
Pierce Oil debs 8s	106¾	106¾	106¾	+ ¼
Prod. & Refrs. 7s	111¾	111	111¼	+ ⅝
Prod. & Refrs. 8 w.w.	114½	113¾	114½	+2
Sinclair Con. 7s	95	93½	94¾	— ¼
do 6s	118¾	113¾	116	— ⅛
do 6½s	90	88¾	89⅞	+1⅛
Sinclair Crude 6s	101	100	101	
Sinclair P. L. sf 5s	87½	86¾	87½	+ ½
Skelly Oil 6½s	120½	118¼	119¼	0
Tidewater Oil 6½s	103¾	103½	103½	0
Union Oil Calif. 6s	104⅜	104⅜	104⅜	+ ⅛

New York Curb Market

1924 High	1924 Low	1925 High	1925 Low	Par Value	Stocks	Transactions week ended June 19 Sales	First	High	Low	Last	Ch'ge
.....	.....	11	2½	....	Amer. Maracaibo	59,100	9¼	*11	9⅛	10¾	+1⅛
7	4	8⅛	5	$10	Ark. Nt. Gas	1,800	7⅛	7½	7	7¼	....
6⅝	2¾	4½	2¾	25c	Carib. Synd	2,300	4¼	4¾	4	4	— ¼
190	132	212	175	$100	Cities Service	.....	.....	.....	.....	.....	....
.....	.....	39½	35	20	do new	12,500	38¾	*39½	38⅝	39	....
82⅞	67¾	82⅝	80¼	100	do pfd	700	82⅜	82⅝	82	82⅜	— ¼
7¾	6⅛	7¾	7¼	10	do pfd. B	.....	.....	.....	.....	.....	....
19	13¼	21⅜	17½	10	do Bkrs. Sh	400	19¼	19¾	19¼	19½	0
10⅝	2¼	13⅝	8¼	N.P.	Creole Synd	14,400	11⅝	11⅞	10¾	11	— ½
8	1½	7	4⅜	N.P.	Derby Oil & Ref	400	5	5	4¾	4¾	— ⅛
34¼	17½	27	23	N.P.	do pfd	800	25	26	25	26	0
.60	.12	.25	.18	$5	Federal Oil	.....	.....	.....	.....	.....	....
.....	.....	3¾	1¾	N.P.	Gilliland v.t.c.	300	2⅛	2⅛	2⅛	2⅛	+ ⅛
.60	.15	.29	.15	$10	Glenrock	8,000	.18	*.29	.18	.25	+ .7
67⅜	56	79	63½	25	Gulf Oil Corp	25,000	75½	*79	74½	77½	+2½
7	1⅛	5⅞	2¾	N.P.	Kirby Petroleum	4,500	3½	3½	3⅜	3½	— ¼
6¾	2⅞	7¼	4⅝	N.P.	Lago Petroleum	33,400	5⅜	5⅝	† 4⅝	5	— ½
4⅞	1½	4¼	1¾	N.P.	Marland of Mexico	.....	.....	.....	.....	.....	....
.....	.....	2	1⅛	$1	Mountain & Gulf	900	1⅝	1⅝	1½	1½	— ⅛
20¾	16	23⅜	18¾	10	Mountain Prod	12,200	23¼	*23⅜	22⅛	22½	— ⅞
14	9½	14⅝	11⅞	5	Mutual Oil ctfs	.....	.....	.....	.....	.....	....
6¼	3½	6⅛	3⅝	5	New Bradford:Oil	14,600	6⅛	6⅛	6	6	— ⅛
44	17	24¾	16¼	10	New England Fuel	.....	.....	.....	.....	.....	....
14	8⅛	12⅞	8¼	25	New York Oil	700	11¾	11¾	11	11	—1
33⅛	29¾	33¾	31⅝	25	Ohio Fuel Corp	.....	.....	.....	.....	.....	....
6	.70	1¾	.90	N.P.	Peer Oil Corp	2,600	1¼	1¾	1	1¼	0
18¾	12¼	28¾	16	10	Pennok Oil	6,000	26⅞	26⅞	26⅝	27¼	+1⅜
57¾	5¾	44½	18¾	25	Red Bank Oil	5,300	40	41	35½	41	+1
5½	3	9½	3½	N.P.	Ryan Consolidated	300	5¾	6	5¾	5¾	— ¼
10¼	6	8⅝	6½	10	Salt Creek Cons	1,400	8⅛	8¼	8	8¼	+ ⅛
27½	19⅛	28⅝	24	10	Salt Creek Prod	7,300	28	*28⅛	27½	27⅞	— ⅛
2½	.80	2	1	5	Sapulpa Refining	.....	.....	.....	.....	.....	....
16¼	6¼	13¾	9	10	Tidal Osage	.....	.....	.....	.....	.....	....
4⅛	2⅝	4⅞	3⅜	5	Venezuelan Pet	8,200	4⅜	4½	4¼	4⅜	0
8½	4⅝	7¾	5⅜	5	Wilcox Oil & Gas	.....	.....	.....	.....	.....	....
13⅞	4¾	7	3¾	N.P.	Woodley Petroleum	100	5⅜	5⅜	5⅜	5⅜	....

Pittsburgh Stock Exchange

1924 High	1924 Low	1925 High	1925 Low	Par Value	Stocks	Transactions Week Ended June 19 Sales	First	High	Low	Last	Ch'ge
7	4	8⅛	5¼	$10	Arkansas Nat. Gas	4,337	7⅛	7⅜	7	7⅛	+ ⅛
40½	35⅜	.....	.....	N.P.	Columbia Gas	.....	.....	.....	.....	.....	....
.....	.....	111	105¾	$100	Duquesne Lt. 7s pfd	65	111	111	111	111	0
30	30	.....	.....	25	Fayette County Gas	.....	.....	.....	.....	.....	....
33½	26½	40	32¼	25	Lone Star Gas	590	38	38¾	x37½	37½	— ½
33¼	28½	34½	31	25	Ohio Fuel Corp	3,163	32½	32½	32⅝	32⅜	— ⅛
16½	11⅝	16¼	12⅜	1	Ohio Fuel Oil	766	13	14	13	14	+1
28½	22⅜	31½	26	25	Oklahoma Nat. Gas	371	29	29	29	29	+ ½
9¾	6	8¾	6	5	Pittsburgh O. & G	200	6¾	6¾	6¾	6¾	— ¼
10½	6	8½	6¼	10	Salt Creek Cons	680	8⅛	8¼	x8	8	— ⅜
16½	8	13⅜	8¼	10	Tidal Osage	10	10	10	10	10	— ¼
92	92	.....	.....	100	do pfd	.....	.....	.....	.....	.....	....

Pittsburgh Curb Market

1924 High	1924 Low	1925 High	1925 Low	Par Value	Stocks	Transactions Week Ended June 19 Sales	First	High	Low	Last	Ch'ge
2½	2½	.....	.....	N.P.	Arkansas Fuel	.....	.....	.....	.....	.....	....
.....	.....	.....	.....	....	Central Ky. Gas	215	20	20	20	20	....
1	.20	2½	.60	$5	Colombia Synd	.....	.....	.....	.....	.....	....
.70	.25	.60	.15	5	Duquesne Oil	.....	.....	.....	.....	.....	....
9½	5½	9	7	10	Forest Oil	.....	.....	.....	.....	.....	....
66¾	57	78	64	25	Gulf Oil Corp	6,200	75	*78	75	77	+3
23¾	21	.....	.....	N.P.	International Pet	.....	.....	.....	.....	.....	....
4½	4½	.....	.....	N.P.	Lago Petroleum	.....	.....	.....	.....	.....	....
6	5	.....	.....	$10	Marshall Oil	.....	.....	.....	.....	.....	....
2⅞	1½	2¾	1⅜	1	Oklahoma Eastern	1,550	1⅜	1⅜	1⅜	1½	0
.77	.35	47	.35	10	Omar O. & G	.....	.....	.....	.....	.....	....
8	3⅝	7	3	5	States Oil	.....	.....	.....	.....	.....	....
.....	.....	2¾	2¼	$1	Texon Oil & Land	10,600	2¼	2¾	2¼	2¾	0
14	10	11	9	10	Tidal Osage non-vot'g	.....	.....	.....	.....	.....	....

*New High †New Low xEx-Dividend

the end of 1923 was 5450 barrels per day, and at the end of 1924 it was 6403 barrels per day.

"We have completed our lubricating refinery at Bossier City with a capacity of 600 barrels per day. We have also complete the first two units of our tube and tank cracking plant which were put in operation in July, 1924. Two more units are under construction and should be complete by July. During the year 3,367,213 barrels of crude oil were run through our refineries."

Income account for the first eight months of 1924 follows:

Earnings from operations	$ 1,315,941
Other income	39,984
Total income	$ 1,355,925
Interest	59,676
Depletion	30,015
Depreciation	378,494
Amortization of undeveloped leases	33,862
Net income before federal taxes	$ 853,877
Loss last four months	193,173
Net for year	$ 660,704

Consolidated balance sheet as of December 31, 1924, follows:

ASSETS

Cash	$ 1,741,958
Accounts receivable	500,016
Notes & interest rec.	148,566
Crude and refined oil	1,091,127
Other materials	13,371
Producing leases net	1,241,636
Appreciation of leases less appreciation realized	6,805,022
Undeveloped leases	910,627
Equipment less deprec.	8,120,877
Construction	2,022
Warehouse supplies	488,263
Sinking fund	27,794
Investments	88,000
Bond discount	137,667
Prepaid expenses	79,846
Total	$21,291,063

LIABILITIES

Accounts payable	$ 509,694
Notes payable	345,056
Accrued liabilities	151,793
Notes payable under special agreement	64,000
Invincible liquidation acc't	10,347
5½% bonds	3,500,000
Tank car notes	628,438
Contingent reserve	250,000
Compensation reserve	4,175
Capital stock	4,289,095
Unearned apreciation	6,805,022
Surplus	4,733,442
Total	$21,291,063

Cleveland Stock Market

	Par	Bid (June 19)	Asked (June 19)	Last Sale (June 19)
Canfield Oil Co.	$100	x109½	.....	115
do pfd.	100	x95½	100	96
Fred G. Clark Co.	10	4½	.....	3½
National Refin. Co.	25	38	.....	39
do pfd.	100	.....	.....	127½
Paragon Refin. Co.	25	8	8½	8
do pfd.	100	60	70	70

x Ex-dividend

Oil Dividends

	Amount	Payable	Stock of Record
British-American q.	50c	July 2	June 20
Canfield Oil q.	$1.50	June 30	June 20
do pfd. q.	$1.50	June 30	June 20
Mexican Pet. q.	$3	July 20	June 30
do pfd. q.	$2	July 20	June 30
Mountain & Gulf q.	2%	July 15	July 1
do extra	1%	July 15	July 1
Pan-American q.	$1.50	July 20	June 30
do B. q.	$1.50	July 20	June 30
Prairie O. & G. q.	50c	July 31	June 30
Prairie P. L. q.	$2	July 31	June 30
Texon Oil & Land	5c	July 10	June 25
White Eagle q.	50c	July 20	July 30

The Oil Industry Exchange

Positions Wanted

Petroleum Technologist and Industrial Oil Engineer desires executive position as Technical Advisor, etc. in Eastern territory. Many years experience and best references furnished. Box 380.

Position Wanted: Have been successively superintendent, sales manager and manager of refinery sixteen years. At present employed. Desire new connections. Thorough knowledge of manufacturing from lubs, petrolatum etc., to cracked gasoline. What have you to offer? Box 374.

Salesman, representing refiner for Southern New England States desires to carry a side line of service station equipment. Box 382.

Practical man competent to take charge, teach and train men in the following branches; Grease making. Compounding. Paint oils. Oxidation of animal and vegetable oils. Refrigeration. Wax pressing. Sweating, and refining. Lubricating oil treating—Mid-Continent and Coastal crude stocks. Filtration. Distillation. Cold settling. Bright stocks. Twenty years with Standard Oil Co. References. Available July 15. Box 384.

Refinery Superintendent. Sixteen years construction and operation of skimming, lub and cracking plants. Can arrange immediately for interview. References. Box 378.

Executives—Relieve yourself of the details of management. Avail yourself of the services of a young executive, thoroughly trained in finance, accounting (including costs) traffic and sales. Twelve years in refining and marketing. Not a clerk looking for soft job with big salary. Proven and clean record. A horse for work. Gets results. University education. Married. Available July 1st. Box 379.

Export Manager

Six years successful record with oil refining company desires larger field. Thorough knowledge of refined oil business. Experienced correspondent, English, Spanish, French and German. Willing to travel abroad. **Box 381**

Situations Open

Core Oil Salesman

An excellent product and liberal commission. The right man will have an opportunity of heading this department and appointing other men. All replies treated as confidential. D. W. Crossett, Warren, Penna.

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Wanted For
PENNSYLVANIA, NEW YORK, OHIO and NEW ENGLAND STATES
Also other territory for
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and
Complete line of equipment for Wholesale and Retail gasoline stations.
Prefer person experienced in selling oil equipment.
Full time or as side line.
Erie Service Station Equipment Co.
Commerce Bldg., Erie, Pa.

Situations Open

Cutting Oil Salesman

An excellent product and liberal commission. The right man will have an opportunity of heading this department and appointing other men. All replies treated as confidential. D. W. Crossett, Warren, Penna.

Business Opportunities

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My services, as buyer of Petroleum Products, at your disposal. Small commission. Market information furnished regularly and prompt attention given all requests.
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Wanted—To Buy

Gasoline Storage Tanks Wanted. Ten, twelve or fifteen thousand gallon capacity. Advise price and condition of tanks. Box 383.

For Sale

Two Henry Vogt Machine Co.'s 20-ton Exhaust Steam Absorption Refrigerating Systems, for sale, complete. In first-class condition. Box 272.

For Lease

For Lease—Number of 8,000 and 6,000 tank cars suitable gasoline on attractive basis. Box 385.

Miscellaneous

WHAT IT COSTS

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